Rolandas Pavilionis

MEANING AND CONCEPTUAL SYSTEMS

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INTRODUCTION

Language, although the most natural product of the human intellect, is one of its creations that is least adequately known. The exceptional role it plays in intellectual assimilation and comprehension of the world and in human intercourse determines the philosophical importance of analysing it; the ways that modern science provides for tackling its fundamental theoretical problems have methodological and practical consequences of principle.

A central problem here is *analysis of the meaning* of linguistic expressions; today it unites the efforts of philosophers, logicians, and linguists, and is the main, most intensively discussed object of their joint consideration. So much depends on the answer to this problem, to mention but: the construction of a general theory of language as a means of forming and transmitting information, solution of a host of practically important tasks of language processing and, last but not least, *clarification of language's place and function in knowing and mastery of the world,* grounded determination of *the connection of thought, language, and the world,* which is of immense methodological significance. This last aspect of the analysis of meaning gives it a *philosophical* character, while the application of logical methods governs understanding of it as the *logico-philosophical analysis of language.*

It is my purpose here to present and to critically examine the conceptions of meaning, or *semantic conceptions,* which have arisen at the junction of modern Western analytical philosophy, logic, and linguistics and which seek to provide a rigorous description and explanation of what constitutes comprehension of linguistic expressions and the human capacity to understand them.

The transition from general arguments about meaning to the present stage of semantic studies of natural language has been characterised primarily by attempts to develop a *theory of meaning* as a *theory of semantic properties and relations*, of the '*logical form*' of linguistic expressions, and at the same time as a *theory of understanding them*.

The critical study of the various conceptions of meaning presented here aims in the main at clarifying how far these conceptions help determine the functions and place of language in cognition and understanding of the world, and to what extent the logico-semantic elaborations contained in them meet the goals of logico-philosophical analysis and promote solution of its principal problems. In other words, I am primarily interested in elucidating—through investigation of concrete theoretical constructs—the validity of the claims of the respective conceptions to answer the problems of the logico-philosophical analysis of language.

The following will therefore be examined as components of the problem of meaning: *its logical and ontological status; the relation of language and reality*; the problem of the *delimitation of the meaningful and meaningless and of the meaningful and the true or false*; *the role of language in construction of a conceptual picture of the world* as some totality of man's beliefs and knowledge of the world.

The choice of semantic conceptions was motivated by the following considerations. Problems discussed in them are important theoretically, methodologically, and practically. Like the conceptions themselves, developed over the past several decades, they have not yet been a matter of systematic review in the Soviet philosophical, methodological, and linguistic literature. The conceptions analysed have been constructed in a general context of studies in logic and the methodology of science. They are distinguished from other semantic theories by the use of formal, logical methods and procedures, while a certain methodological foundation has been given to the programme of constructing a theory of meaning put forward in them.

I have endeavoured, however, not to limit myself to describing and comparing the theories discussed and to bringing out their technical, or even conceptual merits and draw-

backs. I have seen it as *one* of the main tasks to define the general *direction* of contemporary Western logico-semantic studies of natural language from the standpoint of their capacity to solve fundamental questions of its logico-philosophical analysis. I have therefore made critical study of *conceptions* contained in these theories my cornerstone, rather than critical examination of their separate propositions. Thus I would not substitute selection of typical statements for analysis of the conceptions, reduce it to a comparison of critical points of view and a simple counterposing of them to fundamental theses of Marxist epistemology.

The study of language has had a long evolution, during which there have been considerable changes both in its methods and in ideas of the object of research itself, in conformity with the advance in knowledge. This is particularly perceptible in such fields as logic and linguistics, which have been intensively mathematised, and are increasingly employing rigorous methods and procedures. The evolution of ideas about language has been characterised above all by a transition from general statements about the nature of human language and its links with other phenomena of human culture to concrete analysis of its semantic structures and, proceeding from that, to examination of its logical and methodological problems, to a methodological generalisation of its results. The theoretical elaborateness of the theories to be discussed here, and the complexity of the constructs employed (due not only to the complexity of the object but also to the use of the advances of present-day logic and linguistics) call for a methodologically substantiated and theoretically argued investigation. This investigation, in accordance with the principle of dialectics that calls for concrete analysis of a concrete situation, should consist in both bringing out the methodological foundations of the conception discussed and in ascertaining how far they are adequate to the facts of reality on which they claim to be built.

A critical study is really effective only when it contains, as a counterargument, a *positive* development of the problems discussed. I shall, for this reason, try to provide not

only a critical estimate of the present state of semantic analysis of natural language but also a logico-epistemological substantiation of *new ways* of dealing with the problems of the analysis.

I see the *second* task of my book, therefore, in suggesting a programme of semantic studies that will be based on conceiving the problematic of meaning as inseparable from examination of the problem of *knowing the world* and of constructing a *conceptual picture* of it, which, hopefully, will lead to an adequate posing and solution of the questions being discussed. It seemed very important to me to bring out *the nature of the connection of thought and language, thought and reality*, and to discover the significance for this of factors (especially *non-linguistic* ones) that have hitherto not been considered. At the same time I have deemed it necessary to take into account, employ, and develop a number of constructive ideas and arguments, openly or tacitly contained in the theories examined.

I will examine the problem of meaning, which consists in indicating the criteria for meaningfulness of linguistic expressions, in disclosing the relation of the meaningful and the meaningless, of the meaningful and the true or false, the meaningful and the grammatically correct, primarily as an *epistemological problem*. From my point of view, a correct definition of the prospects for the development of modern logico-philosophical analysis of language depends essentially on methodologically correct and theoretically consistent approaches to answering this very problem.

Matters of the analysis of language will therefore be examined here on the logico-epistemological basis as a consideration of the subjective and objective knowledge, the belief and knowledge of a speaker of a language about the world, and of its conceptual and linguistic models, in the light of modern theoretical constructs. In view of that, too, the basic problem of the analysis, viz., that of meaning, will be *discussed as a logico-epistemological problem of understanding* linguistic expressions, and not in the narrow, specifically linguistic aspect, not as a lexicographic problem of defining dictionary meanings of these expressions. I see the essential difference between the logico-philosophical and the

purely linguistic approach to the problem of meaning in that the former is oriented primarily to explanation of the *very possibility* of understanding linguistic expressions, understanding construed here as interpretation of them on the basis of the information a person has of the world, i.e. on the basis of what I call a 'conceptual system'.

In other words, I examine the problem of meaning as a search for an answer to *what* a person knows (believes, etc.) when he understands a linguistic expression. To answer that, I shall have to consider how it is *possible* to understand language, how it can communicate something about a world that is or is not accessible to one's perception, and on the basis of which a person chooses one meaning or another from the number of possible meanings of a word, sentence, or whole text, and establishes their semantic relations, distinguishes the meaningful from the meaningless, the true from the false, a statement or affirmation from a question, order, vow, promise, etc. made by means of language.

Therefore, a philosophical, epistemological understanding of the problematic being considered has to bring out the conception of meaning put forward here as part not of an absolutised essence of the 'semantics of language' but of the *conceptual system* of a speaker of the language as *a system of his ideas and knowledge of the world* that reflects his cognitive experience in the prelingual and lingual stages and levels, and is not reducible to any linguistic essence whatsoever. I shall treat this approach as a counterargument to absolutising of the functions of natural language characteristic (as I shall show) of the main trends of modern logico-semantic studies of language, which, to my mind, misrepresent the role of language in knowing and understanding the world.

This approach (it is my conviction) makes it possible to construct a theoretically promising and methodologically sound programme of semantic studies oriented to disclosing the role and the interrelations both of *linguistic* and *non-linguistic* factors in cognizing the world.

My discussion of these matters is so arranged as to contrast the different conceptions of the problematic of mean-

ing through its constructive development. The concluding section of each chapter, in which the analysis made will be summed up, will, I hope, serve this purpose and make clear the approach I have adopted.

The book, which presents a field of complex study, is meant for a broad circle of readers, viz. philosophers, logicians, linguists, psychologists, cyberneticists, for those concerned with the practical development of systems of 'artificial intelligence', and for everyone who is interested in the philosophical, theoretical, and applied problematic of language, and matters of the theory of knowledge.

Problems of the clarification, refining, and reassessment of the meaning of terms, and of establishing their cognitive significance, are some of the most pressing ones in present-day science, and to an essential extent govern the progress of knowledge. A considerable part of language of science consists of words of the *natural language* that have been given a special meaning, and of words employed in their ordinary meaning.

The use of language in scientific or ordinary discourse is just operating with definite meanings in whatever field of theoretical knowledge or practice the language we use belongs. From that standpoint the problem of meaning has a universal character: *everyone who employs language has to do with it.*

In most cases, however, such use of language is rather like knowing how to drive a car without knowing *how* it works, or similarly to knowing how to walk, run, eat, etc., without knowing *how* our organism functions. The present volume might thus present interest for all who want to know how our language 'works', how it is related to thought and the world, and what modern theories say about this.

It will require a certain effort by readers for them to acquaint themselves with these theories; in order to analyse such a complex thing as our language we obviously need tools of the appropriate complexity. The modern semantic conceptions of language are such tools. We are not concerned here, however, with a popular paraphrase of the theories concerned, but with an exposition of them that will, I hope, present nearly seven decades of intensive re-

search in condensed form, and not only be a critical generalisation of the theoretical and practical experience gained but also a kind of theoretical school for all who are just beginning to be interested in the problematic discussed here. In that category I include, above all, students (philosophers, linguists, psychologists, cybemeticists) following courses of semantics.

The special logical and linguistic terms employed, might present some difficulty for the reader. However, these terms are an inseparable part of the language of science: in employing a special terminology I have tried to follow the accepted standard. Most of other terms contained in the book are generally accepted in the philosophical, logical, and linguistic literature and will be found in the corresponding terminological vocabularies and dictionaries. Wherever necessary the meaning of terms will be defined or explained during the subsequent exposition. In addition an annotated glossary of terms is appended at the end of the book.

As for the use of the formal symbolism, this has been determined exclusively by considerations of necessity and explicitness dictated by the tasks of the study, and do not exceed the requirements of contemporary elementary courses of logic.

The bibliography includes the sources from which the citations in the text have been drawn, and the literature that has been the theoretical and methodological basis of the research, and which reflects the development of the logico-philosophical analysis of language in the aspect I consider it from.

Chapter I

THE METHODOLOGICAL, HISTORICAL AND THEORETICAL PREMISSES OF THE ANALYSIS OF NATURAL LANGUAGE

1. The Methodology and Logic of Investigating Language

The aim of logico-philosophical analysis of natural language, on the general methodological plane, is to disclose the relation between *thought, language,* and the *world.* That makes it possible to define its place and functions in the cognitive process as a human reflection of the world.
Logico-philosophical analysis of natural language is thus directly related to the fundamental epistemological question of the connection of consciousness (mind) and matter, thought and reality.[1]

The fundamental epistemological task from that angle, otherwise formulated as examination of the relation of the *meaning,* or *semantic,* aspect of language and the world, as analysis of the distinctive reflection of reality in the meaning aspect of language, is to bring out the role of language in reflection, and in the structure of knowledge of the world itself. Disclosure of the content of the concept 'meaning aspect of the natural language' also determines the essence of contemporary logico-semantic conceptions of it.

Reflection of objectively existing reality in the consciousness of a person at a certain stage of social development, as understanding, comprehension of it, is an activity directed to knowing the objective world, its properties and regularities, and on that basis transforming it. Knowledge of reality is not a mirror reflection of it, but an active process: it is subjective activity in which the knowng subject himself, his aims, and his practical attitude to the world play an essential role in choice of the object of cognition, and in creation of the cognitive image of it needed for practical assimilation of objective reality.

Because of its communicative, social function, language

is not only a means of expressing and communicating thought, but is also, at a certain stage, a means of forming and constructing thought. One should not not stop at this statement of the role of language and reduce thought to it. The identification of mental and language structures and their complete divorce are both unacceptable. Consideration of thinking as a process goes hand in hand with a pointing out of its universality irrespective of its linguistic formulation.

Every thought process is subjective and individual; without the subject and his activity there is no thought. At the same time it is objective in the sense that it is always a 'subject-object of cognition' relation; in order to be a means of practical transformation of the world, thinking, admittedly, has to have an objective content. So the term 'object of cognition' in its epistemological use refers to any conceivable object: to things, properties, relations, activities, processes, events, etc., whether real or possible.

My task is to give these initial programmic methodological propositions a concrete theoretical content in the light of the results of *contemporary* logico-philosophical study of natural language, and to bring out through that the promise or lack of promise of certain directions of this research. I shall judge the constructive nature of one semantic conception or another in that connection by how far it is adequate for solving problems of the logico-philosophical analysis of natural language, clarifying their methodological foundation in that context. Other ideological, general philosophical precepts of the authors of these conceptions will not be specially discussed.

In critically assessing the methodological principles of dialectical-materialist epistemology, according to which it is unsound to examine the thought process out of context of the thinking, historically determined subject who is cognising the world, I shall try to demonstrate that the fundamental methodological feature of modern semantic conceptions of natural language lies in their making an absolute of language. In my view this absolutising is expressed in examination of the meaning of linguistic expressions outside definite systems of belief and knowledge as

aggregates of man's notions and ideas about the surrounding reality by means of which he assimilates it.

This absolutising is characteristic of the various schools that form the 'analytical tradition' of Western philosophy, beginning with the logical atomism of Bertrand Russell and Ludwig Wittgenstein, Carnap's neopositivist doctrine, the philosophy of 'ordinary language' in its classic and modern versions, and a number of contemporary Western logico-linguistic schools.

The wave of semantic studies in modern logic went hand in hand with logico-philosophical analysis of the language of science, examination of the relation of the empirical and theoretical levels of knowledge, construction of logical models of scientific knowledge, and investigation of the possibility of constructing a satisfactory semantics for various systems of modal logic.[2] The bringing of semantics into modern logico-linguistic studies of natural language proved much more complicated.[3]

The drawing of analogies between *artificial* and *natural languages* is as fruitful in the programme of logico-philosophical analysis of natural language, as it is problematic. By an artificial language is meant one specially created to meet certain scientific or practical needs (mathematical languages, the logical languages of programming, etc.). The expressions of these languages are built according to strictly defined rules. By natural languages are meant ordinary languages (Lithuanian, Russian, English, etc.) as the result of centuries of social practice and as vital means of human intercourse. The main question of modern logico-linguistic studies of these languages is what is the character of the rules for constructing expressions *in them*, and what is their structure.

From an analogy between artificial and natural languages as definite *systems of signs,* languages began to be called *uninterpreted calculus in logic.* This calculus is characterised by a list of primary signs and rules that define the possible operations on them, or *syntactical rules.* They include rules of formation by which 'well-formed expressions' are built from primary signs, and rules of deduction or transformation that make it possible to transform one well-

formed expression into another. By the interpretation of this calculus, or constructed language, is understood the ascribing of certain meanings or senses to well-formed expressions by means of *'semantic rules'*.

Because interpreted calculus becomes contradictory when the rules of formation make it possible to construct expressions whose interpretation by semantic rules leads to one and the same expression's being both true and false, many researchers ask whether a natural language, too, is contradictory since expressions can be formed in it both about it itself and about its expressions. That is clearly to be seen, for example, in the possibility of formulating the paradox of the liar in a natural language expressed in the statement 'I lie (am lying)': if I lie, then I am telling the truth, if I speak the truth, I am lying. If I affirm the one I am compelled to admit the opposite, and vice versa. The logician John G. Kemeny wrote about this paradox:

> [it shows] that English is inconsistent. Since it can be shown that in an inconsistent system anything at all, true or false, can be proved we have to conclude that ordinary English is a language not suitable for logical arguments.[4]

But, no matter how strange, this example of argumentation was made in that same English language which, by virtue of its 'paradoxical nature' is 'not suitable for logical arguments'.

Characteristically Alfred Tarski, who first investigated the matter of the possibility of an adequate definition of truth for natural and artificial languages, refrained from an unambiguous answer to the question of the contradictoriness of the former, pointing out first of all that they do not possess a *distinct structure* in contrast to artificial languages. Hence one can conclude that if the problem of contradictoriness has clear sense for a natural language, the latter is contradictory. If it does not have such a sense in regard to natural language, then one must inevitably conclude (in view of the analogy with an artificial language) that this natural language is mainly indeterminate and not amenable to systematising and description in an uncontradictory model. In that case the construction of the artificial lan-

guage can be reasonably treated, as regards the natural language, as the creation of an *ideal* language.

The prehistory of the critique of natural language as unable to cope with the task of adequate expression of thoughts about external reality is connected with the logical analysis of the foundations of mathematics; the paradoxes of the classical theory of sets engendered by the indeterminacy of the understanding of the term 'set', showed that it was a main task of analysis of the language of science to establish criteria of the meaningfulness of its expressions. Whitehead and Russell came to the conclusion, when examining the reasons for the rise of meaningless expressions, that the opposition of true and false propositions depended on a much more fundamental dichotomy of meaningful and meaningless propositions; the 'theory of types' produced by Russell was means to eliminate meaningless expressions of an artificial language.[5] Wittgenstein, who generalised this conclusion in his *Tractatus Logico-Philosophicus* claimed that the aim of logic and philosophy was to show why one proposition was meaningful and another meaningless. Science strives to bring out what propositions about the world were true, while 'the object of philosophy is the logical clarification of thoughts',[6] to discover what was truly or falsely, but *meaningfully* established about the world, i.e. analysis of the basic structure of language, of its *logical form* concealed in the complex, imperfect forms of natural language.

Natural language was examined in the *Tractatus* not just as a means of philosophical investigation but also as the *sole object* of this research. According to the conception of language adopted in the *Tractatus* as a *picture of the world*, we know the world only because language, in its essential features, i.e. its logical structure, reflects the structure of the world. For a proposition to reflect the world meaningfully its structure should be an isomorphic of the simplest or atomic facts from which the world is built. Consequently a language that depicted the facts and disclosed their logcial relations would, *by the very character of its symbols,* be ideal.

Propositions express a meaning that is affirmed or de-

nied by reality; that is what constitutes their link with the world. In order to make sure whether a proposition makes sense it is necessary to break it down into elementary parts that directly correspond to the atomic facts of the world and designate the limits of our language, or *the limits of meaning*. Then all meaningful propositions are regarded as functions of the truth of the elementary propositions. When the thesis of the depictive function of a proposition ('the proposition is a picture of reality'[7] is joined to this conception, it follows that the foundation on which the limits of meaningful language are established has an *empirical* nature; the boundaries of meaningful language are determined by what objects are given in the world.

When a proposition is meaningful it is either true or false, but if it is impossible to ascribe either of these characteristics to it, then it is meaningless. That is the way most propositions and questions of 'traditional philosophy' are posed.

> The right method of philosophy would be this. To say nothing except what can be said, *i.e.* the propositions of natural science, *i.e.* something that has nothing to do with philosophy: and then always, when someone else wished to say something metaphysical, to demonstrate to him that he had given no meaning to certain signs in his propositions.[8]

'Whereof one cannot speak, thereof one must be silent'.[9] The task of philosophy, in Wittgenstein's view, was not to present new statements about the world but to bring out their logical structure concealed in the imperfect forms of natural language. The latter is far from an ideal language with a transparent logical structure unambiguously correlated with the structure of the world; its imperfection is the main reason for the origin of philosophical muddles and nonsense.

A critique of language was thus given in the *Tractatus* that was a critique of traditional philosophy: 'All philosophy is "Critique of language".'[10] The aim of this critique was to show that we do not understand the logic of our language, that the set of propositions and questions of tradi-

tional philosophy are pseudopropositions and pseudoquestions, because they breach the limits of the natural language so that neither the questions themselves nor the answers to them are meaningful. The possibility of knowledge was therefore defined in the *Tractatus* not as going outside the limits of the empirical world (as in Kant's 'critical' philosophy), but beyond the limits of meaningful language. 'The limits of my language mean the limits of my world',[11] and that already clearly leads to solipsism in the interpretation of language.[12]

Russell's logical analysis of mathematics, and Wittgenstein's treatment of philosophy as a critique of language, played the main role in neopositivist philosophy's receiving a linguistic turn through absorbing these ideas. The task of philosophy was proclaimed to be logical analysis of the language, terms, and propositions of science, in short, analysis of its conceptual apparatus fixed by means of language.

Like Wittgenstein, the logical positivists (Rudolf Carnap and his sympathisers from the Vienna Circle), saw the imperfection of natural language in that its linguistic structure that concealed and masked the logical form of thought led to confusion and, from the epistemological standpoint, to all kinds of undesirable hypostases, and a filling of the world with essences. As in Wittgenstein's *Tractatus* they regarded the imperfection of natural language as a main source of mistakes of knowledge and muddle in philosophy.

The logical positivist orientation to language, the expressions of which are built according to strictly defined rules given in a set of initial meaningful objects, enabled Carnap to note the following causes of the imperfection of natural language.[13] (1) the *existence in it of terms* like 'Pegasus', 'a round square', etc.) *that do not denote objects of the real world* but grammatically perform the same functions as terms that do denote objects given in the world, (from that a danger arose of hypostatising natural language, i.e. an idea that a condition of the meaningful use of a term was the existence of an object designated by it); (2) *breach of the requirements of syntax* in expressions formed from meaningful components (as in 'Caesar is and'—in which the conjunction 'and' occupies a place im-

proper for it as a representative of a certain grammatical category, but precisely a place belonging to the verb, adjective, or noun); (3) *breaches of the rules of logical syntax* (as in the sentence 'Caesar is a prime number'—in which the predicate 'prime number' is inappropriate as regards the object concerned). In this case we have what Carnap called a 'mixing of spheres'.

Analysis of the reasons why the expressions 'Caesar is and', on the one hand, and 'Caesar is a prime number', on the other, are incorrect suggested to Carnap the idea that if the rules of the grammar of natural language were broadened at the expense of the rules of 'logical grammar', or logical syntax, the incorrectness of expressions like 'Caesar is a prime number' could be demonstrated by as strict a procedure as the incorrectness of 'Caesar is and'. This idea of Carnap's was purely *programmatic*; he did not formulate a system of rules governing the correctness of the construction of expressions of natural language. But the view of artificial languages as an idealisation of natural language means that they were regarded as models of the *systematic features* of natural language.

It has been suggested, in that connection, that the construction of artificial languages helps avoid meaningless propositions both in the language of science and in philosophy. Those propositions of natural language that have an empirical, factual content could be translated into an artificial language; their meaningfulness would consequently be determined by the possibility of verifying them (i.e. of establishing their truth): 'Analytical truths' whose meaningfulness was determined not by facts but by the logic of the language itself, i.e. by the meaning given to its expressions by the rules of constructing expressions in it, could also be so translated. The translation of philosophical statements into an ideal language would either bring out their purely linguistic content, i.e. that they were simply statements about the language, or be impossible in view of infringements of the rules of 'logical syntax' by the statements in question.

The category of statements that are untranslatable into an ideal language included, for example, statements of

transcendental metaphysics that laid claim to the role of statements presenting knowledge about what was above or beyond any experience, for example, about the true essence of things, about things in themselves, about the absolute and so on.[11] While the construction of artificial languages was a programme, for some proponents of them, for the formal reconstruction of natural language, it served as grounds for others for rejecting use of natural language *in general* for conducting a rational argument. It was suggested that a reliable argument could only be made by means of concepts expressed in formalised, artificial languages.

The search for analogies between artificial languages and natural ones was an attempt to find a system in everything that constitutes a natural language, and in particular in what forms its *semantic* aspect. At first glance it seemed that the fact of rational intercourse by means of natural language, and its significance for human knowledge, could serve as objective justification of this attempt. However, consistent implementation of the view of natural language as a certain semantic system distorts its role in constructing a conceptual picture of the world (as will be shown below), and inevitably leads to understanding it as a contradictory system.

As for the methodological and theoretical basis on which modern logico-philosophical analysis of natural language arose, I must touch briefly on what distinguished it essentially from the neopositivist approach to analysis of natural language in the 'philosophy of language' or 'linguistic philosophy' that found expression in Wittgenstein's last works, and in those of G. E. Moore, Gilbert Ryle, and later of Peter F. Strawson, J. L. Austin, John R. Searle, Michael Dummett, Anthony Quinton, and others.

Whereas logical positivists looked for a way out of the blind alley into which natural language had, in their opinion, led philosophy in the creation of artificial languages that did not have natural language's imperfections, this approach consisted primarily (the last works of Wittgenstein, the leading exponent of 'linguistic philosophy', who changed his mind about the reliability of the thesis about ideal

language he put forward in the *Tractatus)*, in description of *the ways of employing* linguistic expressions that generated philosophical confusion.[15] Wittgenstein now saw the reason for the origin of undesirable philosophical problems *in the attitude to natural language and the ways of employing it* rather than in the language itself. The way out, therefore, in his opinion, consisted not in constructing an ideal language that unambiguously depicted the ontological structure of the world and did not have the shortcomings of natural language, but in describing the means or structures of intelligent use of expressions of the latter and consequently in exposing the incorrect ways of using it that generated absurdities.[16]

In his *Philosophical Investigations* (in contrast to *Tractatus)* the world is considered as something accessible to us only *through language*, through interpretation in language, rather than as something existing independently of its description in language and subject to reflection in the logical structure of natural language. The conception of language as a 'picture of the world' gave way to one of language as a means and instrument of articulating and comprehending the world. From that standpoint it was no longer a matter of clarifying the logical structures of natural language and of the real meanings of the linguistic expressions concealed under its imprecise, indefinite formulations. In that conception philosophical problems did not arise while natural language was employed in the ordinary way, in a number of its functions, so as to transmit information, describe facts, evaluate scientific theories, express feelings, and so on. All these were *'language games'* with their own rules and logic, which must not be broken, otherwise we ceased *to use* expressions in this 'game' in which its *meaningfulness* was determined. Each term, if comprehended, should have its paradigm of use; words meant only what they signified in the given 'language game'. Thus, if I am told how the names of flowers, or the words 'gene', 'continuum', 'pain', and so on, are used, i.e. if I am told what 'game' one can play with them, I will understand their meaning. Knowing what 'games' terms can be used in, I thereby also know *what games they can-*

not be used in. Each correct move in the 'language game' must consequently have its alternative, its antithesis, or contrast (for example, the command 'Go left!' says at the same time 'Do not go right!'). Words are used meaninglessly when they are used without an antithesis and without contrast.

Hence the striving to correlate analysis of the meaning of a linguistic expression with the pragmatic context of its use as a definite, correctly formed action of a speaker of the language directed to achieving certain aims. In order to understand or explain the meaning of an expression or utterance, one should not look for some concrete or abstract substance (essence) signified by the utterance (as in the classical conceptions of 'semantic realism') but should refer to its *use*, which also constitutes its meaning. By use, moreover, is also understood not just the set of concrete cases of the expression's use, but the *definite way* of proper use that correspond to the linguistic standards generally accepted in the given society; meaning is constituted in the inter-subject use of natural language.[71] Mastery of the meaning of a linguistic expression is thus regarded as mastery of the criteria of its correct use, which necessarily presupposes general application of the criteria and gives the language activity an objective character (for example, in delimiting objects of the world by use of the predicates 'red' and 'not-red' to demarcate red and not-red object respectively; understanding of the meaning of these predicates consists in knowing the rules of their use).

All philosophical problems are expressed in natural language; they would not puzzle us if this language was used correctly. According to Wittgenstein, philosophical absurdities arise when speakers of natural language break the rules of its usage and try to formulate certain philosophical statements by means of it, i.e. when a linguistic expression is employed outside a certain 'language game'. Complications consequently arise not because of the imperfection of natural language but because of the violence done to it by speakers when it is torn out of the natural sphere of use in which it only could function sensibly.

The concepts of natural language, being the verbal ac-

tivity of individuals in complex social conditions, are inevitably inexact and imprecise. The ideal of precision preached in the *Tractatus* was a myth from that angle, a metaphysical fiction; the precision was always sufficient to a *certain context*; absolute exactness did not exist. Allowing for that, and for there being no common essential features between 'language games' but only a greater or less 'family resemblance', Wittgenstein suggested that to model a natural language, to look at its expressions through some logical, stereotyped pattern, and to look for something common and essential in them, something concealed in their logical form, meant to distort them and deprive them of life. There was such a danger, for example, in the illusion that all meaningful terms were names; because of that illusion, universals, various intensional objects, objective entities, etc., were hypostasised.

It was the task of philosophy to describe in detail the logic of the use of linguistic expressions of a certain 'language game', in particular to disclose the way to analyse these uses of natural language that led to philosophical muddles, and gave an excuse for the rise of a 'pathology of language', and 'convulsions of intellect' in the form of philosophical problems.

In summing up what I have said about the two schools of the philosophy of natural language—the neopositivist and 'ordinary language philosophy' as represented in Wittgenstein's last works—I must note that a definite service of the former has been that it demonstrated the importance of the logico-philosophical epistemological problematic of natural language. The orientation to a systematicity in the logico-epistemological analysis of language is evidence of a striving to follow the spirit of science (rigorousness, definiteness) in theoretical investigation of natural language. This requirement had to be observed whenever any scientific theory of language as a means of constructing and transmitting information about the world was to be created. This theoretical precept is the rational kernel that must be extracted from the methodologically unsound interpretations and conclusions that proponents of the neopositivist doctrine of language have come to.

It is methodologically mistaken, for instance, to put forward as a fundamental thesis, the thesis of an *ideal language,* as one with a perfect structure, that unambiguously reflects the structure of reality, and not as an approximation of natural language. This thesis is a consequence of the conception advanced by Wittgenstein in the *Tractatus* of the isomorphism of the logical form of a linguistic expression and the structure of reality. The approach based on that thesis signified a projecting onto reality of an absolutised logical scheme that in the end led to an idealistically distorted ('upside-down') understanding of reflection of the world. The world does not consist of any absolutely simple 'atomic' facts independent of each other, and natural language and its expressions perform the function of transmitting information about the world not because they are analogues of *this* structure of the world, but because of their *semantic aspect,* inaccessible to observation (in contract to natural language) and inseparable from the systems of information that its speakers have of the world (as will be shown below).

With that approach the criteria of meaningfulness are harmful for the conceptions in which they themselves are formulated, not to mention their discrepancy with the real use of natural language. The latter not only will not fit into the procrustean bed of true and false propositions but also not, in general, into any absolute, *a priori* scheme of meaningfulness that ignores the real process of cognition as one of the construction and change of knowledge of the world and, on the philosophical plane, as one of the construction of a certain world conception and world outlook of the speaker.

The illusory nature of claims to have established final criteria of meaningfulness, the futility of the search for a solely correct logical structure of linguistic expressions that corresponds to the structure of reality, and the methodological unsoundness of attempts to reduce the semantic (including the general philosophical) problems to linguistic ones are confirmed by analysis of the further evolution of logico-philosophical study of natural language.

Linguistic philosophy's view of the functioning of natur-

al language as part of *man's complex social being,* and the drive to allow for the natural, dynamic, 'full-blooded' process of its functioning are positive factors compared with the 'rarefied' model of natural language proposed by neopositivists. But whereas the neopositivist analysis was determined by the search for *a systematic* theory of language, an absolutising of the polysemy of linguistic expressions, independent of any systematising was primarily characteristic of linguistic philosophy of the 'classical period'. But that absolutising led ultimately to a linguistic fetishism no less destructive methodologically than the thesis of an ideal language in the neopositivist analysis. This conclusion has to be backed up by certain considerations of a general methodological character.

The progress of theoretical thought has always been linked with discovery of factors important for explaining the phenomenon being investigated, to which attention was not paid (or was not sufficiently paid) and allowance for which was a constructive step towards understanding it. But the bringing out of this important aspect of the object under study entails a danger, or at least a temptation to make an absolute of its significance that could lead to deplorable methodological and theoretical consequences, namely to an attempt to present the *whole* explanation exclusively in the light of these *new* factors to the detriment of others. The *use* in linguistic philosophy of linguistic expressions that require the context of their use to be taken into account, and that necessitate treating the linguistic activity as meaningful only when it is governed by certain rules, i.e. when the use of the expression is correct from the standpoint of a certain linguistic practice, functions as an extremely important but absolutised element.

But this conception, as we shall see, does not require us to identify the *meaningfulness* of a linguistic expression with the *correctness* of its use, and correspondingly to identify the theory of meaning with the theory of the correct use of linguistic expressions, as has been done in the conception of linguistic philosophy. Such an identification, as I shall show below, makes both the phenomenon of the acquiring of language and the possibility of assimilating

new knowledge by means of it inexplicable. The same goes for the possibility of meaningful use of one and the same language in different (new) situations and contexts in order to express the speaker's different (including incompatible) notions about the world. The conception advanced by Wittgenstein in his last works about 'meaning as use' must be regarded as an extremely important pointer to *the significance of allowing for the pragmatic factor of the context of the use of* linguistic expressions to define its meaningfulness, and not as a definite theory of meaning.

That attitude is maintained as well in the latest studies of linguistic philosophy, which merit recognition mainly because of their development of the conception of 'speech acts'. In these studies, as in Wittgenstein's conception that preceded them, understanding of the meaning of a linguistic expression is treated as knowledge of the rules for using it; in contrast to the classic descriptive doctrine, however, there is a striving in them for *systematic explanation* of what knowledge of the meaning of a linguistic expression consists in, what it is manifested in, and what its role is in relating a person to reality and to other speakers of the language. In other words, an attempt is made to construct a systematic explanatory theory of the use of language, and to bring out the communications structure of its use. The postulate of an initial givenness of the language as a determinant of articulation, knowledge, and understanding of the world is retained in it, however, a postulate that not only essentially limits the theory's explanatory possibilities theoretically but also (as I have already remarked) gives a methodologically distorted idea of the relation of thought, language, and the world.

2. Linguistics and the Formal Analysis of Language

For a long time it was considered in linguistics that an exclusive orientation to the systematic aspect of natural language, a rejection of any references of a semantic order (references that signified, it was presupposed, a dangerous departure from the system of language into vague, extralinguistic realities difficult to define) was the sole correct scien-

tific strategy (it was most consistently defended in structural formal linguistics by de Saussure, Bloomfield, Harris, Fries, and Chomsky in his early works). Doubt in the reliability of semantic studies (though even possibly with recognition of their need) mainly concerned one point, namely whether it was possible at all to indicate the semantic structure of a linguistic expression as objectively, rigorously, and exactly, for example, as its syntactic and phonological structure. But the incompleteness of linguistic description (when the semantic aspects remained outside the structures ascribed to expressions) and its inadequacy (when one and the same structure was ascribed intuitively to linguistic expressions that were different from the semantic standpoint) inevitably prompted researchers to look for ways of realising the programme mapped out in his time by Carnap, and inevitably led to *rehabilitation* of semantic studies.

The first steps towards realising this programme were made in the early works of Noam Chomsky, the founder of the transformational-generative theory of natural language. As an example of the difficulties entailed in partial rehabilitation of semantics in formal linguistic models of language, one can point to the interpretation of the concept 'grammatical' in regard to the sentence 'Colourless green ideas sleep furiously', which later became standard. In the early work of Chomsky and others the question was put as follows: should this expression at least be considered grammatically correct even if it is nonsense? If it was not the one or the other, in what way then did it differ from the sentence 'Interesting new ideas seldom arise'?[18] The opinions of logicians, philosophers, and linguists were not unequivocal on this point. The linguist Roman Jakobson, for instance, thought such expressions grammatically correct but semantically false. In the opinion of the logician and linguist Paul Ziff such sentences were not false, but were not meaningless.[19] The logician Curry considered them to be on a 'different level of grammaticalness',[20] with which the logician and philosopher Hilary Putnam agreed, though he did not find them logical,[21] while the logician Willard Quine would class them as trivially false propositions.[22]

The evolution of the views of Chomsky himself is re-

markable in the matter of definition of the place of semantics in the investigation of natural language. Thus, in his *Syntactic Structures*, the sentence cited above was considered grammatically correct because he supposed at that time that semantic considerations had no relation to linguistic analysis.[23] Later, and especially in *Aspects of the Theory of Syntax*, in which he developed a 'standard theory' of transformational-generative analysis (see Ch. II, 1), the sentence considered was already qualified as infringing the norms of grammar.[24] The point is that his conception of grammar then also included a semantic component. Although Chomsky never undertook to build a semantic theory of natural language proper on the basis of transformational-generative grammar (that was done later by Jerrold Katz on the basis of Chomsky's theory[25], he no longer identified the 'grammaticalness' of the sentence with its syntactic correctness.

In subsequent studies that represent the period of 'extended standard theory', the realia of natural language were related more and more broadly to the semantic aspect, including certain characteristically 'surface forms' or 'surface structures' of linguistic expressions (see Ch. II, § 1).[26] But having recognised that construction of a semantic theory adequate to the intuition of a speaker of natural language was beyond the possibilities of linguistic theory, since it called for *full allowance for extralinguistic knowledge* or *the speaker's knowledge of the world*, Chomsky formulated a 'revised extended standard theory', according to which formally described structures could be given a full semantic interpretation only when they were tied up with other *non-linguistic cognitive* structures, including the beliefs, intentions, etc., of speakers of natural language.[27]

The construction of this theory can be characterised simultaneously as a search for a limit of the semantic claims of linguistic theory and as recognition of the significance of the factor of extralinguistic knowledge for building an adequate semantic theory.

The problem of the meaning of expressions of natural language had already been treated long back in both the Soviet and the Western logico-philosophical literature as a

problem of accepting one of the possible answers to the question 'what is meaning?' A very general conception of meaning (in the sense of determinacy) was associated with each of the proposed answers.

The problem of meaning was discussed particularly intensively in connection with the exceptional role ascribed to natural language as an object of philosophical analysis in neopositivist and linguistic philosophy. One must note in that connection such different methodological consequences of philosophical interest in the analysis of natural language as the transition from its supposed structure to the structure of reality, to the structure of the brain, consciousness, culture, and history, and in general to the structure of 'human phenomena'. If these theoretical extrapolations were not always formulated as philosophical doctrines, they functioned at least as specific conceptions of the analysis of these phenomena, and special trends of investigation subsequently took shape on their basis.

In that connection it must also be noted that the problem of meaning (by analysis of which the main trends of modern logico-philosophical studies of natural language have been determined) is not discussed just in analytical philosophy. The studies carried out in the context of French structuralism, for instance, deserve particular attention. One should indicate first of all the work of the French semiotician A. J. Greimas and his school, in which the problem of meaning is examined in a broard socio-cultural aspect —as a problem of the discovery of the semantic structure of various systems of signs and symbols and their interaction.[28] These studies call for special consideration.

Before going into the characteristics of the separate conceptions of meaning, let me state a few other considerations of a methodological order about the tasks of formal semantic analysis of natural language put forward in them.

Formalisation of the concept 'meaningful expression of natural language' in the *descriptive* and *explanatory* aspects is usually indicated as the final guideline of formal analysis of natural language. It is a matter of constructing a decision procedure for understanding the concept 'well-formed expression of natural language' that will serve not only

as a description of given expressions but also for predicting *any new* correctly constructed ones both *syntactically* and *semantically*. What is intended is a pointer to a definite procedure that will make it possible to determine the correctness of the construction of a linguistic expression in a *finite* number of steps. The point concerns bringing out the logical or semantic structure of linguistic expressions from which their semantic properties and relations can be determined. Such a formalisation of natural language is a necessary precondition of its automatic, machine processing, pursuant of such extremely important aims in practice as automatic search for information, machine translation, the creation of systems of 'artificial intellect', and so on.

As has been shown above, it is not enough for this to point out the rules of the syntactic combinability of the lexical units (as a definition of the concept of 'a syntactically well-formed expression of natural language'), which represent (in terms of traditional grammar) the categories of noun (substantive), verb, adjective, adverb, etc. (Thus the sentence 'The new virtue is bald' does not differ syntactically from 'The new shirt is dirty'). (1) Expressions of natural language that have one and the same syntactical or, possibly, even phonetic and lexical structure, may *differ in meaning*, and vice versa. (2) One of them may be perceived as *meaningful* and the other as *meaningless*. (3) Expressions meaningful in themselves may not form a *meaningful text*, especially in view of the possible ambiguity of its components.

At the same time (and this is no less important) the point concerns the *theoretical reconstruction of knowledge*, along with a formal description of the language, that pursues certain practical aims, a reconstruction through which the speaker of the language correlates acoustic or visual signals (as expressions of the language) with information coded in them (as the meaning of these expressions). This refers to the bringing out of the knowledge by which a person *understands* expressions and so determines their meaningfulness, 'ascribing' some meaning or other to a word, sentence, or text, establishing some semantic link or other between them, and so noting that some of them describe the

world as it actually is, or will be, could be or, on the contrary, could not be, that the truth of some expressions follows from, or only presupposes, the truth of others, that some one expression is suitable or, on the contrary, unsuitable for performing a certain speech act (statement, question, order, vow, promise, etc.), that there are such-and-such semantic relations between expressions, of the same or different natural languages and so on.

The task of semantic theory consequently includes establishing those principles and rules that would explain the *capacity of* a *speaker of a language to understand its expressions.* In that connection a precept is accepted as the initial methodological premiss that both the natural language and the knowledge are amenable to rational analysis and can ultimately be characterised by clearly formulated principles.

In other words, the task of semantic theory includes explication of what is called the 'linguistic intuition' of a speaker of natural language, by which is understood his unconscious or not quite conscious knowledge of the principles in relation to which the researcher builds a theoretical model in the form of a system of clearly formulated statements. When it is said, for example, that a speaker of natural language has an intuitive understanding of the *grammatical correctness* of linguistic expressions, one has in mind (as Quine has noted) that he usually distinguishes a grammatically correctly constructed expression from one incorrectly constructed in that respect 'by intuitive judgment.'[29] In that case criteria of the grammaticalness of expressions must be explicitly formulated in the theory that models this capacity, in the shape of rules that generate only correctly constructed expressions of the language. These rules are a certain formal analogue of the 'mechanism' postulated in the speaker's natural language that accepts its correctly constructed expressions and rejects incorrectly constructed ones.

In view of the foregoing it is a matter of explication of linguistic intuition, and of looking for criteria of the *adequacy* of the *theory* in accordance with it, or the possibility of verifying it empirically. It is thus a matter of a special

situation in which linguistic intuition is not only the object of explication but is itself the criterion of its adequacy, which in turn depends essentially on the *conception of meaning* that is proper to a concrete semantic theory.

Notes to Chapter I

[1] See: P. V. Kopnin. *Dialcktika, logika, nauka* (The Dialectics of Logic and Science), Moscow, 1973, pp. 189-204; Certain epistemological and logical aspects of the problem of meaning are examined in the works of L. A. Abramyan, B. V. Biryukov, G. A. Brutian, D. P. Gorsky, M. S. Kozlova, V. A. Lektorsky, V. V. Petrov, M. V. Popovich, V. A. Stoff, and other Soviet philosophers.

[2] These matters have been analysed in the works of the following Soviet philosophers and logicians listed in the bibliography: V. N. Brodsky, A. A. Ivin, V. N. Kostyuk, S. B. Krymsky, E. E. Lednikov, Yu. A. Petrov, M. V. Popovich, V. N. Sadovsky, O. F. Serebryannikov, V. S. Shvyrev, Ya. A. Slinin, V. A. Smirnov, E. D. Smirnova, A. L. Subbotin, P. V. Tavants, V. V. Tselishchev and E. K. Voishvillo.

[3] Certain linguistic, in particular formal linguistic, aspects of the semantic language problematic have been considered in studies by N. D. Arutyunova, E. V. Paducheva and V. A. Zvegintsev, listed in the bibliography.

[4] John G. Kemeny. Semantics in Logic. *Encyclopaedia Britannica* (1965), Vol. 20, p. 313D.

[5] Alfred N. Whitehead and Bertrand Russel. *Principia Mathematica,* Vol. 1.

[6] Ludwig Wittgenstein. *Tractatus Logico-Philosophicus,* p. 77.

[7] *Ibid.,* p. 63.

[8] *Ibid.,* pp. 188-189.

[9] *Ibid.,* p. 189.

[10] *Ibid.,* p. 63.

[11] *Ibid.,* p. 149.

[12] The philosophical aspect of Wittgenstein's doctrine is not specially examined in this book.

[13] See: Rudolf Carnap. *The Logical Syntax of Language.*

[14] Rudolf Carnap. *Introduction to Semantics.*

[15] Rudolf Carnap. On Belief Sentences. In: Margaret McDonald (Ed.). *Philosophy and Analysis,* pp. 128-141.

[16] See: Ludwig Wittgenstein. *Philosophical Investigations. The Blue and Brown Books.*

[17] As a contemporary spokesman of linguistic philosophy, Michael Dummett puts it: 'In using words of a language, a speaker is responsible to the way that language is used now, to the pres-

ently agreed practices of the community'. (Postscript. *Syntheses*, 1974, 27; 3/4; 533). Knowledge of the meaning of an utterance, according to him, is knowledge of its correct use, although the rules themselves are not usually formulated verbally but are only manifested in *activity* in accordance with the rules.

[18] Noam Chomsky. *Syntactic Structures*, p. 15.

[19] Paul Ziff. About Ungrammaticalness. *Mind, 1964*, (73, 4: 204-214).

[20] Huskell B. Curry. Some Logical Aspects of Grammatical Structure. In: R. Jakobson (Ed.) *On the Structure of Language and its Mathematical Aspects* (Proceedings of the 12th Symposium on Applied Mathematics), pp. 56-68.

[21] Hilary Putnam, Some Issues in the Theory of Grammar. In: R. Jakobson (Ed.). *Op. cit.*, pp. 25-42.

[22] Willard O. V. Quine. *Word and Object.*

[23] Noam Chomsky. *Syntactic Structures.*

[24] Noam Chomsky. *Aspects of the Theory of Syntax.*

[25] Jerrold J. Katz. *Semantic Theory.*

[26] Noam Chomsky. Deep Structure, Surface Structure, and Semantic Interpretation. In: Danny D. Steinberg and Leon A. Jakobovits (Editors). *Semantics. An Interdisciplinary Reader in Philosophy, Linguistics, and Psychology*, pp. 183-216.

[27] Noam Chomsky. *Reflections on Language; Essays on Form and Interpretation; Language and Responsibility*; *Rules and Representations.*

[28] A. J. Greimas. *Sémantique structurale. Recherche de méthode; Du sens; Sémiotique et sciences sociales.*

[29] W. Quine. *Word and Object*, p. 30.

Chapter II

STATUS OF MEANING IN SEMANTIC CONCEPTIONS OF NATURAL LANGUAGE

1. The Interpretative Conception of Semantics or the 'Algebra of Meaning'

The task of semantic theory, from the standpoint of the transformational-generative conception of natural language, dominant in contemporary formal linguistics, is a systematic explication of the intuition of speakers of that language, which consists in their capacity to understand and produce any new sentence.

The appearance of a new doctrine of natural language in regard to neopositivism and linguistic philosophy is linked with this theory, which is free of the shortcomings of the former schools, namely an exclusive orientation to the physical reality of the language, in the one case, and to asystematicity in the other.[1] On the methodological plane the proponents of this conception link it with 'the rationalist universal grammar' whose principles had already been formulated in the seventeenth century by the philosophers and grammarians of the Port Royal school who had suggested that the *meaning* of a sentence, or its *'logical form'*, was not identical with a given perceptible *'surface structure'*. The meaning of a sentence is directly linked with its *'deep'* structure, which has an abstract character that is explained by the immanent properties of mind. The terms 'deep structure' and 'surface structure' themselves express the difference, on the philosophical plane, between 'essence' and *'phenomenon'*. In the modern interpretation that signifies the following: if an artificial language of logic is so constructed that the logical form of expressions of this language is clearly represented in the expressions *themselves,* the *logical form* of expressions of natural language will be contained in them in a concealed way, implicitly, not on the surface level. The transformational-generative theory thus differs as a philosophy of natural language from the above-mentioned philosophical doctrines primar-

ily in explaining the surface structure of linguistic expressions accessible to observation by deep, abstract logical structures not accessible to observation. Bearing in mind the significance attached to the concept *'logical form'* in this theory, let us examine it in more detail.

In the transformational-generative theory of language, the logical form of an expression is understood as that which is necessary for drawing a correct conclusion, as that on which the deductive relations of linguistic expressions depend. The classical understanding of logical form, or structure (accepted by Russell, Wittgenstein, and Quine), is regarded, moreover, as that which is constituted exclusively by 'logical words', or 'logical constants' ('not', 'and', 'or', 'if', 'then', 'all', 'some'), and presupposes division of the vocabulary of natural language into logical and extralogical, or descriptive parts. Doubts about the validity of this delimitation were expressed by Tarski, who noted that

> no objective grounds are known to me which permit us to draw a sharp boundary between the two groups of terms. It seems to be possible to include among logical terms some which are usually regarded by logicians as extralogical without running into consequences which stand in sharp contrast to ordinary usage. In the extreme case we could regard all terms of the language as logical. The concept of *formal* consequence would then coincide with that of *material* consequence.[2]

It is thus proposed to regard as relations of consequence not only those which depend on semantics as relations of consequence (to the extent that semantics is disclosed in the classical logical calculi which were then considered as theories of the logical truths of natural language) of the expressions 'no', 'and', 'or', 'if', 'then', 'all', 'some', and other expressions of natural language similar to them in the aspect being considered.[3] The point also concerns the relations constituted by the meaning of *descriptive* expressions belonging to grammatical categories of noun, verb, adjective, adverb (as, for example, in the argument 'There are bachelors, consequently there are men', 'I had a nightmare, so I had a dream'). Just as it has been necessary, in modern logic, to introduce new rules of inference adequate

for speakers' intuition to formalise the transition from, for example, sentences like 'Every horse is an animal' to the sentence 'Every horse's head is the head of an animal' it is natural to expect the introduction of rules 'embracing' a corresponding link in the transition, for example, from 'All nightmares have a Freudian significance' to 'All dreams have a Freudian significance', and so on.

The complexity of the problem of logical form in natural language is, however, that the logical form of expressions of natural language, in contrast to the language of logic, is *not given* on the surface, and that behind identification of the surface grammatical form of expressions there are concealed fundamental logical differences. That, for example, can explain why the argument 'Today I ate what I bought last week. Last week I bought expensive fish. Consequently, I ate expensive fish today' is correct, while the argument 'Today I ate what I bought last week. Last week I bought fresh fish. Consequently I ate fresh fish today' is incorrect.

Deep structure, according to the *interpretative* conception of transformational-generative grammar, is a formal syntactic object, recursively generated by certain rules of grammar (the 'direct formation rules', or 'phrase structure rules'), and interpreted by 'projection rules' (the semantic rules of the model) in a set of universals, i.e. of 'semantic markers', not dependent on the specific nature of the natural language (see below). The concept of the *recursive* generation, clearly, has been borrowed from mathematical logic in which it signifies the producibility of an infinite set of expressions from a finite set of initial elements by application of a finite set of rules to them.

All that is treated as agreeing with intuition that the speaker of a natural language understands a sentence by understanding the components of it, and the way these elements are employed in it. It is thus presupposed to theoretically reconstruct a native's capacity to make and understand an infinite set of sentences of natural language through a finite vocabulary and a finite set of rules.

In the theory being considered semantic markers are theoretical constructs, '*atoms of meaning*' independent of the

concrete natural language, i.e. the minimal semantic units from which the meaning of the dictionary (lexical) units, finite components of the deep structure, is constructed. Syntactical markers (for example, 'noun', 'verb', 'adjective') express the syntactical relations of lexical units, whereas semantic markers (for example, 'human', 'live', 'physical') express their semantic relations. The meaning of linguistic expressions also contains certain 'selection restrictions' in addition to semantic markers, as formal restrictions on the constructing of possible semantic objects, necessarily postulated in view of the stated aim of formalising the concept of the *meaningfulness* of linguistic expressions (for example, in order to exclude such structures as 'My pain weighs three pounds').

The semantic component of grammar thus includes vocabulary, which in turn contains semantic representations for each lexical meaning of a definite lexeme and 'projection rules' linking these representations. Together with the vocabulary (dictionary) and 'projection rules' semantic representations are ascribed to sentences which corresponds to understanding the meaning of a linguistic expressions as a *function of its component meanings* ('Frege's principle') and their deep syntactic organisation. The deep level is regarded as that at which, logically, or semantically significant characteristics of expressions of natural language are given: knowledge of it presupposes knowledge of the deep structure of its expressions.

The physical reality of natural language is a sequence of signals, whereas the set of semantic, syntactic, and even phonetic characteristics ascribed by speakers to the expressions of natural language do not have a physical correlate, and so are not functions of the physical signal. The transformational-generative theory is therefore opposed to those conceptions of natural language (in particular taxinomic and behaviourist) according to which all the characteristics needed to explain the phenomena of this language are contained in its surface structure. It is a fact that speakers of a natural language, on perceiving an acoustic signal, *a priori* meet it with a much more complicated model than that which could be inferred from the signal itself.

Just as the difference (identity) of the meaning of some lexical units is determined by the difference (identity) of the semantic markers that constitute these meanings, so the difference (identity) of sentence meanings is determined by the difference (identity) of the possible semantic structure formed by means of the projection rules from the different meanings of the dictionary units that form the sentence. In any case the semantic properties (for example, meaningfulness) and relations (for example, consequence, synonymy) of linguistic expressions are established formally according to this conception--through the presence in them of some or other semantic structure, and according to the definitions of these properties and relations contained in the theory and set out in terms of formal characteristics that the semantic structures of the linguistic expressions being examined should correspond to. An expression is considered meaningless, for instance, if no semantic structure can be ascribed to it ('My pain weighs three pounds'), i.e. if it does not get any semantic representation. An expression is said to be ambiguous if two or more semantic representations are assigned to it. Two expressions are considered synonymous if the same semantic representation is related to them.

The question of the choice of markers included in the meaning of a given dictionary unit W is decided as follows: if there are two markers R_1 and R_2, then the choice of R_1 as entry into the meaning of the unit W is determined by the fact that R_1 presents a possibility of forecasting semantic properties and relations of the appropriate linguistic expressions that include W, which is impossible with choice of R_2. If, moreover, the information represented in R_1 and R_2, and which constitutes the sole formal difference between R_1 and R_2, plays a role in forecasting the semantic properties and relations of the corresponding linguistic expressions, then this information relates to the *vocabulary* of the natural language. It is its semantic information one is only concerned with in the interpretative conception of semantics. If one can simplify the dictionary unit W without including symbols in its meaning that differentiate R_1 from R_2 and, moreover, without damage to the predictive

potential of the grammar, then 'this information is not dictionary information but encyclopedia information, factual information about the referent of *W*'.[4]

Semantic markers, being theoretical constructs, are regarded as *concepts* in an informal interpretation. By the latter are understood not some individual representations or ideas, not 'elements in the subjective process of thinking',[5] (called *'cognitions'* in the theory, which constitute a concrete individual's conscious experience, similar to individual feelings and emotions, sensations, experiences, recollections, and hallucinations), but some abstract entity in the spirit of Frege's 'thoughts' (*Gedanken*) as the *objective content of the thought process*, which can be passed from one individual to another as something *common* to all or most speakers of natural language. The entities that the linguistic expressions are related by are those that the following forms, for example, express on the interlanguage level: Lithuanian 'man salta', English *'I am cold'*, French *'j'ai froid'*, Spanish *'tengo frio'*, etc.,

Frege's idea of 'thought' is very close in general to the methodology of deep structures.

> Nowadays [he wrote] people seem inclined to exaggerate the scope of the statement that different linguistic expressions are never completely equivalent, that a word can never be exactly translated into another language. One might perhaps go even further, and say that the same word is never taken in quite the same way even by men who share a language. I will not inquire as to the measure of truth in these statements; I would only emphasize that nevertheless different expressions quite often have something in common which I call the sense, or, in the special case of sentences, the *thought*. In other words, we must not fail to recognize that the same sense, the same thought may be variously expressed; thus the difference does not here concern the sense, but only the apprehension, shading, or colouring of the thought, and is irrelevant for logic. It is possible for one sentence to give no more and no less information than another and, for all the multiplicity of languages, mankind has a *common stock of thoughts*. If all transformations of the expression were forbidden on the plea that this would alter the content as well, logic would simply be crippled, for the task of logic can hardly be performed without

> trying to recognize *the thought* in its manifold guises. Moreover, all definitions would then have to be rejected as false.
> [My italics—*R.P.*][8]

As to the ontological status of concepts the theory does not provide a final answer so as not to be linked with such a strong assumption as the existence of universals. It is supposed that first approximations to an answer to questions of that kind can only be expressed when researchers have more knowledge at their disposal about the semantic structure of expressions. Therefore, the required explanations of an ontological order about the concept 'concept', although possibly extremely desirable, cannot be treated as preliminary conditions of the successful construction of a theory and a theoretical explication of the semantic structure of linguistic expressions. The reliability of the definition of a finite set of elementary semantic markers, and equally substantiation of its delimitation from the infinite set of complex semantic markers determined by it, are dependent on the success of this explication.

Semantic universals, like the other fundamental characteristics of transformational-generative grammar, are presumed to be components of the *universal* basis of any natural language. This grammar is treated as a theory explaining what is common for natural languages in terms of the concept '*naural language*'; it is a theory of natural language *in general*, and one speaks of universals as having the status of *innate* principles.

The rationalistic theory of these principles constitutes the philosophical stock of transformational-generative grammar; in that sense the theory can be regarded as a formal reconstruction of the hypothesis of 'innate ideas'. According to this theory a person can very early on, and independent of how intelligent he is, assimilate the concrete grammar and most intricate constructions of a natural language on the basis of these principles, while dealing mainly in his linguistic practice with fragmentary and defective material.

Affirmation of the universal character of the semantic aspect of the correlation 'linguistic expression—meaning'

also gives the theory philosophical significance and, as its supporters claim, is the basis for interlinguistic postulates of meaning as an invariant of intralanguage and interlanguage transformations that make it possible to construct a hypothesis of the relation of natural language and logic more definitely than before, i.e. of the relation between the logical form of an expression and its linguistic formulation.

In this interpretation acceptance of the methodology of deep structures means that all natural languages have, at a sufficiently abstract level, *one and the same grammatical structure and semantics.*[7] The existence of meanings specific for separate natural languages is explained, in turn, by the universal semantic components' being able to form semantic combinations specific for the given language, fixed in lexical units in its vocabulary. The 'possible' concepts are thus defined in terms of universal semantic components that also constitute the initial semantic basis of any natural language. From that it follows that all languages have identical expressive possibilities and are all intertranslatable in the sense that for every sentence in a language there is at least one sentence in any other natural language that expresses the *same meaning.*

Even allowance for the hypothesis of linguistic relativity cannot bring proponents of the thesis of natural language's universal expressive possibilities to reject it, but only to modify it: namely, as follows. If one admits, in accordance with the hypothesis, that natural language predetermines the categories and forms of the thoughts of people who acquire it, then the fact that mastery of a natural language limits its speakers' expressive possibilities will equally be evidence that *each* thought of the speakers of a natural language is expressed in *that* language.

The possibility of understanding any new expression of a natural language is ensured (as follows from what has been said above) by this expression's being contained, in view of the recursive character of the basic rules of grammar, in an infinite set of expressions generated by these rules. Finally, the transformational-generative theory is not a theory of the *use* ('performance') of a natural language by its real speakers, but a theory of *linguistic competence,* i.e.

a theory that models the linguistic intuition of *an ideal speaker of a natural language,* whose 'performance' of it is not limited by any physical and psychological factors like volume of memory, attention, and motivation, which are assumed to be 'grammatically irrelevant'.[8]

It is consequently a matter of a theory that models what the *ideal* speaker of a natural language knows about the grammatical structure of his language (which consists of phonological, syntactical, and semantic components). This constitutes the *implicit knowledge of a real speaker of the language*, through which he communicates with other speakers of the language. Linguistic 'performance' is how linguistic competence is *employed* in actual speech situations by speakers of a natural language. Thus, in the theory of transformational-generative grammar as a theory of linguistic competence, not only are *the functions of language in the business of cognising the world* abstracted from the irregularities, distortions, and mistakes peculiar to the use of natural language, but are also abstracted—because of exclusion of the factor of the *use* of linguistic expressions from the field of review—from examination of the fundamental *link of language and the world.* It pursues the aim of systematising only those aspects of language that reflect its knowledge as a *system,* i.e. the ideal speaker's knowledge of all the semantic relations available in the system of the language provided by the postulated absolute set of meanings. This knowledge is determined irrespective of the speaker's knowledge of the *world.* The concept of linguistic competence, on the contrary, is defined through the concept of an ideal speaker of the language as the basis of the linguistic 'performance' of real speakers of the language, the basis of its use. In other words, it is a theory of the competence of a speaker of the language whose linguistic knowledge is wholly determined by the possibilities of explication contained in the *theory* itself.

The attempts of proponents of this conception to justify treatment of knowledge of natural language unrelated to its speakers' knowledge of the world (in essence, counterposed to this knowledge) is backed up with references to the idea that the task of the linguist engaged in constructing

a semantic theory of natural language does not include discovery of which of its expressions denote one and the same object of the world (as, for example, in the case of the 'morning star' and the 'evening star', which designate the planet Venus) or which of its sentences express truth and which falsehood (for example, that the sentences 'The morning star is the evening star', or 'All cats have tails' express something true or false is considered the business of the astronomer or zoologist, and not of the linguist). Ignoring of the extralinguistic circumstances of the use of natural language determines in advance the closed character of the formal model concerned. Meaning is then determined exclusively through combinatorial analysis of initial, universal, 'semantic atoms'.

According to this conception everything that can be said about meaning can be said in terms of finite sets of elements, having in mind the generation of an infinite set of possible finite objects (meanings and the expressions of the language related with them) from a finite set of 'semantic atoms' through a finite number of applications of certain rules. As David Lewis has remarked, in such a case,

> there is no risk of alarming the ontologically parsimonious. But it is just this pleasing finitude that prevents Markerese semantics from dealing with the relations between symbols and the world of non-symbols—that is, with genuinely semantic relations.[1]

One can therefore only say—that the interpretative conception, in proposing such a universal algebra of meaning, 'models' the meaning of linguistic expressions in *that* understanding, *abstracted* from analysis of the relations of natural language and the world. Only in that sense, divorced from examination of the relation of natural language and the world, can one speak as well of the degree of the theory's adequacy to the object investigated by it.

The aims of interpretative theory, the claims about its empirical verifiability, and at the same time about its necessary intralinguistically closed character, inevitably come into conflict. That indicates the unsoundness of the opposing of *linguistic knowledge* (knowledge about language) to

extralinguistic knowledge (speakers' knowledge of the world). Such an opposing of these varieties of knowledge in the theory under consideration is not simply the usual theoretical ploy employed for a more adequate description of the object of investigation, in this case language, but a direct consequence of the methodologically mistaken precept initially adopted in treating language divorced from its links with reality, and from the information about the world that its speakers have at their disposal.

The concentration of semantic theory exclusively on description of 'linguistic knowledge', which is itself a theoretical construct, and an abstraction from the real knowledge of real speakers of the language, leaves open not only how the language is related to reality and how it is possible to employ it to describe and understand reality but also how it is *possible* in general to *understand* this reality-describing language.

The claims of this theory to explain the intuition of understanding language in such a situation simply cannot be realised. It cannot then also be a matter, of course, of explaining the functions of language in cognition. The theory's incapacity to embrace what is called speakers' 'extralinguistic knowledge', and in spite of that, its claim to be a theory of understanding of language, condition acceptance of its abstract 'semantics of language' devoid of links with reality, and of the hypothesis of 'innate knowledge' in order to justify its universal character, which even further deepens doubts in its methodological foundations.

At the same time the importance of a number of the theoretical ideas and constructs put forward by this theory cannot be denied. The determination of two levels of analysis of linguistic expressions—deep and surface—must be included in these constructive principles, which provides the basis for a broad comparison of logical and linguistic structures and for bringing out the relation between them. The theory's proposition to broaden the very concept of the logical form of linguistic expressions is also positive; consequently, the possibilities of determining the logical correctness of arguments carried on through natural language are substantially enhanced.

2. Meaning and Truth: The Semantics of Possible Worlds and Natural Language

Examination of the connection between expressions of natural language and what they refer to, in other words between language and the world, in terms of the conceptual apparatus developed for semantic analysis of artificial languages, draws its tradition from Frege's studies. His philosophy of language can be considered the starting point—on both the orthodox and the critical plane—for the main contemporary trends of study of natural language. Starting from the point that natural language expresses its speakers' thoughts about reality, i.e. what is true or false, Frege saw the fundamental task of theory to explain the mechanism of the transmission of thought from one speaker of a language to another.[10] According to him sentences express something true or false insofar as their parts *designate, refer* to parts of this reality which are the *meanings* (*Bedeutung*) of the corresponding expressions. A name, for instance, designates its bearer, a predicate signifies the set of elements to which it refers. But these *reference connections* (or relations of reference) are not direct; otherwise it would be necessary, in order to understand an expression of natural language, to know all the members of the set of objects to which it referred, which is impossible to do in most cases. According to Frege, the reference connections are mediated by that which, when *understood* ('grasped'), gives us knowledge as to what the field of objects designated by the term includes, and in the case of sentences what determines their truth-value. This mediating element, according to him, is the *sense* (*Sinn*) of the expression. The meanings (senses) of the expressions contained in a sentence constitute the *thought* (*Gedanke*) expressed by the sentence (and in some contexts, for example, those of belief (see Chap. V) the expression is considered to designate the meaning). The senses and meanings of complex expressions are treated as *functions* of the senses and meanings of the component parts.

Frege's concept of meaning (sense) has a *cognitive function*; it was primarily introduced to decide the problem of the cognitive value, or informativeness, of true statements of identity. The informativeness of a statement with the form *'a = b'* (for instance, 'The morning star is the evening star'), in contrast to *'a = a' 'b = b'*, is due with that approach to the fact that although *'a'* and *'b'* designate one and the same object, have one and the same *reference meaning* (Bedeutung), they realise it by different means, i.e. have a different sense *(Sinn)*, which is the *mode of the presentation* (*Art von Gegebensein*), the way of representing the object in thought. Thoughts can be expressed and understood by means of language, but they are ontologically and conceptually independent of the language and of human individuals.

Frege's tradition has been continued in the studies of contemporary logicians (Donald Davidson, David Lewis, Richard Montague, David Kaplan, M. J. Cresswell, Jaakko J. Hintikka, and others). They set themselves the aim of explaining how expressions of natural language can be employed to transmit information about the world, and presuppose using the concepts of *truth* and *reference* as fundamental for analysis of the semantics of expressions of the language. Indeed, it is not essential for the linguist, which propositions of the language express truth and which falsehood (i.e. knowledge of the *truth-value* of a sentence), which expressions designate one and the same object, and which do not; but he must establish in *what conditions* one sentence or another expresses truth (i.e. knowledge of the *truth-conditions* of the language's sentences),[11] because it is knowledge of the conditions in which a given sentence expresses truth that is important for speakers' understanding of it. Although clarification of the truth of sentences is a matter for specific sciences, study of the truth-conditions validly belongs to the province of semantics.[12]

The idea of the meaning of a sentence is thus regarded here as inseparable from *information* about whether the sentence is true, whether the world corresponds to the truth-conditions of the sentence. The construction of a semantic theory of natural language is therefore regarded as

construction of a *theory of truth* for expressions of the language that in its principal features follows the theory of truth proposed by Tarski for formalised languages. That theory is a finite, axiomatised one whose set of theorems consists of biconditional propositions (i.e. propositions connected by the connective 'if and only if'—written iff), or so-called *T-sentences* obtained from the scheme '*s* is true iff *p*' (for example, 'The sentence "Snow is white" is true, if and only if snow is white'). Here *s* is replaced by a name or the description of a sentence, and *p* by the sentence itself, which represents the truth-conditions or by its translation, depending on whether the object language is contained in the metalanguage. It is essential for this scheme that the theory characterises the truth of the sentence without employing conceptual means not contained in the sentence concerned.

The predicate of truth is not defined in the theory, but is treated as *basic*. It provides a possibility of passing from *examination of the language* (i.e. of the proposition that is on the left side of the *T*-sentence) to *examination of the world* (by means of the proposition of the right-hand side of the *T*-sentence). This predicate opens, as it were, the inverted commas around the proposition of the object language. The referents of proper names (individual constants) are indicated in the axioms of the theory, and the conditions of the satisfaction of simple predicates are formulated in them. They also contain a recursive apparatus that guarantees generation of an infinite set of sentences of the language from a finite set of semantically significant elements. Each sentence of the infinite set is thus characterised in truth-terms. The theory of truth for language *L* is assumed to be adequate if it implies a *T*-sentence for each sentence of language *L* ('*convention-T*').

The theory of truth for formal languages was taken as the model for constructing a theory of truth for natural languages. That the convention-*T* was accepted as a criterion for constructing the theory of truth for natural languages is explained by the following circumstances. (1) *T*-sentences are obviously and clearly true (i.e. pretheoretically, before analysis). We recognise this property of them

when we *understand* the predicate 'is true'. (2) T-sentences in the aggregate define the extension (scope) of the predicate of truth. The significance of a theory of truth for natural languages does not consist in its explaining what is true in general but in its showing, as Davidson puts it, how 'the meanings of sentences depend upon the meanings of the words (or other structural features',[13] i.e. discloses the truth-conditions of the sentence, treating it as constituted in a truthfully relevant way from a finite set of elements.

In other words, this theory is required to give a *definition of truth* for expressions of natural language, and thereby *a definition of the meaningfulness* of the latter's expressions. According to Davidson,

> the definition works by giving necessary and sufficient conditions for the truth of every sentence, and to give truth conditions is a way of giving the meaning of a sentence. To know the semantic concept of truth for a language is to know what it is for a sentence—any sentence —to be true, and this amounts, in one good sense we can give to the phrase, to understanding the language.[14]

We know, for example, that the meaning of the connective '&' in logic as the analogue of the conjunction 'and' in natural language is given by indicating the truth conditions that must be met (satisfied) by the sentences that form the conjunction; namely, '*p*&*q*' is true if '*p*' is true and '*q*' is true. The construction of the definition of truth is treated in that sense as the construction of a theory of semantics for expressions of natural language.

Can it be claimed that this theory of truth provides an explanation of how the linguistic expressions that constitute sentences are related to reality? When answering that question one must say that the theory of truth constructed in the spirit of Tarski in general neither analyses, nor explains the pretheoretical concept of truth nor the pretheoretical concept of reference. In view of that the question arises of what is the place of the concept of reference in this theory of truth.

Two approaches to this question can be distinguished in the tradition of logical analysis of natural languages. From the standpoint known as *'reductionist'*, the proposed

path of logical analysis of language is understood as a transition from explanation of the semantic characteristics of simple expressions to explanation of increasingly complex linguistic constructions. According to this approach one must pass from explanation of the referential characteristics of simple proper names and simple predicates to explanation of the reference of compound names and compound predicates. Only after that can one characterise (as derived) the concept of the satisfaction of the predicates and, finally, the concept of the truth of the sentence. In spite of its seeming naturalness, this approach does not provide any possibility of explaining reference directly in non-linguistic terms. It is caught, so to speak, in a vicious linguistic circle.

From the other standpoint, customarily called '*holistic*' (see the analysis of Quine's conception below), logical analysis of natural language should begin from the point where we can expect to link the language with the behaviour of its speakers described in *non-linguistic* terms. At that point, naturally, we at least find *sentences* of the language. According to this approach, words have no other function than that which they perform in sentences. The semantic properties of words are derivative; they are deduced from the semantic properties of the sentences, just as the semantic properties of sentences are abstractions from their discursive, communicative functions. Acceptance of this approach, however, does not remove the question of explaining the reference of the components of the sentence; it is now simply considered in another (non-linguistic) context.

In this variant of 'holistic' theory, as presented for example by Davidson,[15] the reference relation of expressions gets a certain content indirectly, through a definite theory of truth, i.e. when T-sentences are given this content.

In the scheme '*s* is true iff *p*', suggested as a substitute for the scheme '*s* means *p*', it is essential to clarify the content, in view of the understanding of 'if and only if' as material equivalence, of the relation of '*s* and '*p*'. To anticipate a bit, it should be noted that this relation, treated in terms of the truth of the corresponding biconditional sentence

(for example, ' "Snow is white" is true if and only if snow is white') can always suggest that the scheme is trivial. That applies especially to the case when the language in which the definition of truth is given is the one for which the definition is given, i.e. when the metalanguage is part of the object language. When the metalanguage differs from the object language as in the Russian sentence ' "Snow is white" истинно, если и только если снег является белым' → [' "Snow is white" is true if and only if snow is white'] clarification of the problem of translation is called for.

One must stress, however, that, as with the first approach, the question is also reduced in the second to the generation not of *any* true biconditional sentences but of true ones relevant for establishing the meaning of the linguistic expression. It is a matter not of giving a definition of truth through the concept of translation, but of building a theory of truth such as will help resolve questions of translation from one language to another. A biconditional sentence is not, in itself, essential for establishing the meaning of a linguistic expression, but its proof is. In any case it is a matter not of establishing synonymy between '*s* and '*p*', not of 'a simulation of synonymy', but primarily of presentation of a 'picture which, taken as a whole, tells what there is to know of the meaning of *s*'.[16]

It is precisely on an ignoring of the *programme* character of the convention that the counterarguments are built, which come down to the definition of meaningfulness in terms of the truth of sentences finding itself in a vicious circle: knowledge of the truth of a sentence presupposes knowledge of its meaning, but if the meaning of the sentence is known there is no need to resort to the concept of truth to define the semantics of the sentence. The discussion about the primacy of the concept of truth in relation to the concept of meaning, and vice versa, in my view resembles in general the dispute about which comes first, the chicken or the egg, when, on the one hand, it does not allow for what I consider the methodologically important aspect of Convention-T, which brings out the relation of the meaningfulness of a sentence and the *truth conditions* formulated

in it and, on the other, when it does not allow for the aspect of the genesis of meaning and meaningful *sentences* and the corresponding aspect of speakers' *mastery* of the truth conditions of sentences of natural language.

The claim that T-sentences bring out the meaning of expressions of natural language should consequently be interpreted primarily as a methodologically important and theoretically constructive pointer to the role of the concept of truth in understanding the meaning of *s*; *to know the meaning of s means to know in what state of affairs in the world s is true*. In other words, *T*-sentences can be regarded as an abbreviation for the formal procedures of explication of the meaning of *s* as the logical form of *s*, which should be prescribed by the theory and realised by it. In the sense of the possibility of constructing such a theory, one can speak of Davidson's approach as a definite theory of natural language: in itself the definition of truth, of course, cannot replace semantic theory.

In striving to show the unconstructive character of theories based on use of such 'vague' concepts as the concept of meaning as advocated in interpretative theory, Davidson gave the following intensionalistic analysis of the Fregean type of sentence 'Theaetetus flies':

> Ask, for example, for the meaning of 'Theaetetus flies'. A Fregean answer might go something like this: given the meaning of 'Thealtetus' as argument, the meaning of 'flies' yields the meaning of 'Theaetetus flies' as value. The vacuity of this answer is obvious. We wanted to know what the meaning of 'Theaetetuc fles' is; it is no progress to be told that it is the meaning of 'Theaetetus flies'. This much we knew before any theory was in sight.[17]

The semantic interpretative theory is therefore regarded as no more than an algorithm of translation from the object language into some Markerese language.

> But we can know the Markerese translation of an English sentence without knowing the first thing about the meaning of the English sentence: namely, the conditions under which it would be true. Semantics with no treatment of truth conditions is not semantics. Translation into Markerese is at best a substitute for real semantics, relying either on our tacit competence (at some future

date) as speakers of Markerese or on our ability to do real semantics at least for the one language. Markerehe.[18]

Davidson's model is best adapted to analysis of those fragments of natural language, and of that aspect of the semantics of its expressions, that are formalised by means of standard first order logic with a proposed interpretation of expressions of this language relative to the *real world*. The significance of the concepts of truth and reference is then particularly obvious. With such analysis the truth conditions of sentences of the language are inseparable from the object (*referents*, *extensions*) indicated or designated by the descriptive terms (i.e. by singular terms—by names, for example 'Jonas', or by descriptions, for example 'Petras' brother'—and by predicates) while the meaning of the logical terms (logical constants) contained in the sentences receives a truth-functional (extensional) definition. Relations of deduction are established between sentences of natural language at the considered level of their analysis, and understanding of the sentence is reduced, starting from that, to knowledge of its interpretation in the real world. In that case the theory of reference is at the same time a theory of the meaning of the natural language at the given level of its formal analysis. But however skillfully the resources of first order logic are exploited in its standard interpretation, it only works, of course, within the limits of its possibilities.

The simplicity of the construction and effectiveness of the application of the definition of truth for logical constants do not in general guarantee opportunities of as simple and effective an application of it for a broader range of expressions of natural language. The set of the semantic realia of a language, explication of which is essential in order to explain speakers' understanding of it, is simply not modelled by the conceptual means of this logic. They primarily include sentences containing modal concepts (necessity and possibility), intensional concepts (knowledge, belief, faith, desire, striving, etc.), that function in contexts with the form 'a knows (thinks, believes...) that ...' and raise the problem of criteria of the interchangeability, or

substitutability, in such contexts of terms signifying one and the same object.

The various descriptions of a belief thus cannot, despite of one of the principles of classical logic, preserve the truth value of the sentence of the belief. For example, it does not follow from the truth of the sentences 'Jonas believes that his neighbour is a musician' and 'Jonas' neighbour is Petras' brother' (i.e. it is not logically deducible), that the sentence 'Jonas believes that Petras' brother is a musician' is true. Appeal to a semantic analysis of these sentences is not the whim of a logician or linguist, of an 'erasing' of peripheral parts or the 'borderland' of natural language as it were, but the key to answering principal methodological and logical problems of the analysis of language, to determining its function in cognition and the construction of a conceptual picture of the world, and to explicating the connection between the speaker's thought, the language itself, and the world described in its terms (see Ch. V).

These resistive realia also include descripion of hypothetical situations expressed through conditional sentences (but not necessarily precisely conditional, since the hypotheticalness of the situation may stem from the described *content* itself). This applies particularly to those forms of them that, in contrast to conditional sentences of the type of 'If *p*, then *q*' express another modus of the conditional link (a 'potential condition' or 'unreal condition' in the terminology of traditional grammar) and has the form 'If *p* had occurred, then *q* would have occurred' (which are called *counterfactual conditional sentences* or counterfactuals, in logical terminology).[19]

These realia (especially in a context of the description of hypothetical situations) include phenomena of the *reference* and *correference* of singular terms, and also the *anaphoric use of pronouns* (i.e. the substitution of a definite linguistic expression or group of expressions, that signify the same object, which is accomplished when there is a definite verbal or non-verbal context, and which presumes the semantic connectedness of the argument). These realia also include use of the '*indexicals*' 'I', 'he', 'this', 'that', 'here', 'there', 'now', 'present', etc., which presume the

existence of a definite context and are employed to describe various possible states of affairs in the world. Analysis of corresponding fragments of natural language, undertaken for purposes of a formal, systematic reconstruction of knowledge on the basis of which a speaker of the language relates (correlates) the corresponding terms within the context of a definite argument,, carried on in this language, is impracticable by means of classical (standard) semantic notions that admit the possibility of interpreting linguistic expressions exclusively relative to the *real world*.

In view of the fact that it can be a matter, in sentences of natural language, not only of what happens in the world but also of what happened, will happen, or might happen in certain circumstances, the meaning of a sentence is regarded, in the extended understanding of reference theory presented in the studies of Lewis, Montague, Kaplan, Cresswell, Kripke, Hintikka, and others, which 'have grown' from the semantics of modal logic (developed in the works of Kripke and Hintikka) as inseparable from *information about whether the given sentence is true relative to some possible world*. Then the real world is treated as one of possible worlds, namely that which occurs, which is realised and, in contrast to other possible worlds, is 'peopled' by real, and not possible individuals who possess such and such properties and relations. Other possible worlds are then regarded as *alternatives* to the given world that (logically and not just physically) could be realised in another course of events (for example, in the case of the counterfactual sentence 'If Jonas played, "Žalgiris" would win'; understanding of this sentence from this point of view is just presupposing a possible world in which Jonas plays, and the basketball team "Žalgiris" wins).

The concept 'possible world' was first used in logic by Leibniz when examining the necessarily true statements as true in all possible worlds, including the real world, and *possibly* true statements as true in certain possible worlds. Wittgenstein claimed in the *Tractatus* that to understand a sentence was to know what happens in the world if it is true; the meaning of a sentence boiled down to the mode by which it divided possible states of affairs into those

in which it wast true and those in which it was false.

In modern modal logic, which concerns itself with explication of the logical relations of sentences that contain modal concepts of necessity and possibility, the Leibnizian concept of possible worlds has been given 'new life', thanks to Kripke's introduction (when constructing a semantics for modal logic) of the concept of the *relation of attainability* between possible worlds.[20] The statement is considered to be necessarily true in world W if and only if it is true in all possible worlds attainable in world (or from world) *W*. The resulting semantics corresponds to different modal logics depending on the specific content put into the concept of attainability.

The intuitive substantiation of use of the concept of possible worlds to determine the meaning of sentences of natural language is as follows. The truth-value of a sentence is determined by two factors: by what is said in the sentence and what is in the world. The meaning of a sentence, or its *intension*, can thus be regarded as a function (or rule), transferring us from the world to a certain truth-value (an extension of the sentence). The meaning of a linguistic expression may be regarded in general as a function (the intension of the expression) from the world to certain of its objects (extension of the expression). But since speakers' notions of the world change (not to mention that they may have different or even incompatible notions of the world), and since they have to regard propositions about hypothetical and imaginary situations along with other propositions (both practical and theoretical discussions are based on the possibility of such a treatment), a function is needed that takes as its argument not only the actual state of the world or actual world, but also different *possible worlds*.

Speakers of a language constantly, although possibly unconsciously, have to deal with possible worlds as something that corresponds to and is compatible with their notions, convictions, beliefs, predispositions, aspirations, wishes, desires, doubts, etc. Sentences by which a speaker expresses his belief, for example, without necessarily prefixing it with the phrase 'I believe that', correspond to a certain set of possible worlds in which these sentences are true. The

understanding of such a sentence signifies an idea of the world in which it is true. This world is not of course necessarily the real world; what a certain speaker believes may or may not correspond to the state of affairs in the real world. Consequently he is not only dealing with objects that exist in a given world, and with real objects, treated in various hypothetical situations, but is also dealing with objects that belong *exclusively to possible worlds.* In that case the term '*intentionality*' (employed since the time of Brentano[21] and Husserl[22]) signifies a special case of the *direction of thought* to certain objects; it is a matter of *mental* acts aimed, in contrast to physical acts, at *non-existent objects.* To the extent that we *understand* sentences about such objects, the idea of the identity of objects existing in possible worlds is *meaningful.*

One of the most striking cases of the operation of possible worlds is the telling of a story. Understanding of what is told in it signifies understanding of what the world should be for the story to be true. In other words it signifies understanding of the *truth conditions* of the story. In that case it is a matter at least of two possible worlds—the one described by the story-teller and the one to which he belongs. The later world is not necessarily the real world, since in our world we can describe a possible world in which someone tells a story, i.e. in which some third world is described, and so on.

The existence of a quite definite intuition behind the concept of 'possible world', and equally its heuristic significance in the construction of a semantic theory of natural language, ensure it the status of a *basic* concept of the theory; greater *clarification* of it (as in the case, incidentally, of the host of other theoretical concepts employed in the language of science and of philosophy) is not attainable by defining it but is achievable by employing it in theoretical explanation of the phenomenon being analysed by means of it.

In the studies of Lewis, Montague, and others, the domain of the arguments of the intension-function is broadened, in various degrees, at the expense of a certain set of other factors important for defining the corresponding ex-

tensions. In propositions like 'Today is Wednesday', 'He is my neighbour', 'It is cold here', the truth-value of which depends on extension of the indexical components of the sentences ('today', 'he', 'my'), the domain of the arguments of the intension-functions (apart from the factor of possible world) therefore contains a number of *contextual* factors, or so-called *co-ordinates* (indexicals, *reference points*, depending on the terminology adopted) of time, place, hearer, speaker, etc. In this extended understanding *intensions* are functions that relate sets of these factors to the appropriate *extensions*.

The drawing of contextual factors into analysis of the meaning of linguistic expressions is undoubtedly a positive element. It means allowing to some extent for the *pragmatic* aspect of natural language (in the *narrow* sense), i.e. the aspect linked with speakers' *use* of the language. Generally speaking a line is drawn in reference semantics between the description of possible languages (as the construction of a truth-theory for their expressions) or of grammars as abstract semantic systems whose symbols correspond to certain aspects of the world, and the description of psychological and sociological facts by which a certain one of these abstract semantic systems is realised, and gets a certain use. In the latter case we speak of the pragmatics in the *proper* (*broad*) sense of the term as a *theory of speech acts*.

Wittgenstein's thesis of the *meaning* of a linguistic expression as its *use* got further development and extension in this sense, through analysis of the *communicative structure* of the use of linguistic expressions (in the work of Austin, Searle, Grice, and others). And it is by drawing a distinction between the *meaning* of a linguistic expression as its *use* in certain typical cases, and the meaning of a definite *utterance* of a linguistic expression as a definite *illocutionary* role (in Austin's terminology), attributed to the expression in a given context of its use.

Other authors distinguish between the *meaning of a type-sentence* and the *meaning of a sign-sentence*. The sentence 'It is raining' can be used, for instance, in a certain context as a warning, a request (for example, to close

the window), a threat, etc., apart from its ordinary use as a statement. In that case a linguistic expression is regarded from the standpoint of the *roles* it is given by speakers in a definite *speech act;* a linguistic expression in interrogative form may, in turn, be employed not only to get or to ask for information but also to express doubt, a request, and even affirmation (when the question is rhetorical). In short, a linguistic expression is regarded from the standpoint of the roles it is given by the speakers in a definite *speech act*; the language's function of statement is thus no longer regarded as its sole function. The meaning of a certain utterance of a linguistic expression can then be taken to be a function of the meaning of the expression and of its pragmatic context.[23]

'perlocutionary' role, or act, is distinguished as another pragmatic aspect of a linguistic expression, along with its illocutionary role,[24] as the achieving of a definite *effect* (on the hearer), for example a change of behaviour as a consequence of a threat by performing a certain speech act. Thus, according to Austin, a speaker performs an illocutionary act (asserts, forecasts, promises, etc.) by performing a *locutionary* act (utterance of grammatically structured sounds), and completes a *perlocutionary* act (i.e. affects the hearer in some way or other).

Grice similarly considered the use of linguistic expressions as a definite form of *action*[25] aimed at achieving concrete ends. One of these ends, to which one is oriented when making a statement, consists in getting the hearer to accept a certain opinion (*belief*); the sentence '*p*' pronounced is then regarded as having the intention of so affecting the hearer that he begins to think that *p*. Grice later modified this theoretical stance, pointing out that *a*, employing an affirmative sentence '*p*' in respect of *b* is considered to have the intention of so affecting *b* that he will think that *a* thinks that *p*.[26] Searle treats 'constitutive rules' in a similar pragmatic key; they are norms of a sort of the use of linguistic expressions as norms of linguistic communication; the 'sincerity' rule, for instance, reads that a statement made by using sentence '*p*' signifies that the speaker thinks that *p*.[27]

These attempts to systematise the communicative aspect of the use of natural language led to a need to allow for the *intentions of a speaker*, and to broaden the understanding itself of the semantic problematic of analysis of this language by including the *pragmatic* aspects (*in the broad sense*) of the use of linguistic expressions in this problematic, even, as we shall see, without due allowance for the speaker as the bearer of definite *conceptual system*. It is in these systems that knowledge of the meaning of speech acts consists, knowledge on the basis of which the speaker as bearer of a conceptual system realises a certain illocutionary and perlocutionary force of the linguistic expression he has used.

A principle that there is no real theoretical difference between artificial and natural languages as interpretive systems of signs or symbols has been adopted in the concepts of reference semantics as a methodological precondition of the analysis of natural language. In any case it is considered that there is nothing to prevent use of one and the same conceptual apparatus to analyse the semantics of these languages. The degree of explicitness of the rules for forming expression of these languages is taken to be an unessential difference between them. From that it is concluded that if the rules of a natural language's grammar could be explicitly and fully formulated, that grammar would have to be regarded as the grammar of a formal language.

Although the ultimate aim pursued both in the interpretative conception of semantics and in the conceptions of reference semantics, consists in formalisation of the predicate 'meaningful expression of the natural language', the difference between these approaches is obvious from the angle of their psychological orientation, not to mention their conceptual difference and the range of phenomena of natural language covered by them.

Spokesmen of the transformational-generative theory try to characterise all possible languages, but only *human* ones, developing a definite hypothesis about the structural properties of the brain. Knowledge of the structure of natural language, it is suggested, leads to discovery of the nature

of human thinking; and each aspect of transformational-generative grammar has a definite psychological reality in a certain abstract sense, namely in the speaker's intuition representing facts as a source for building a linguistic theory, which, in turn, describes abstract entities. The presentation of natural language through a certain system of rules is supposed to be psychologically and physically realisable; this system, when appropriately elaborated, is treated as the theoretical basis for explaining the mechanism of mastery of language.

Reference theory, in contrast to transformational-generative theory, is a theory of the syntax and semantics of *any language* as an *interpretable system of signs*. Criteria of formal rigor and elegance often predominate in it over the criterion of psychological reliability. For Montague, for instance, the syntax, semantics, and pragmatics of natural language are domains related to *mathematics* rather than to psychology, so that study of language by the methods employed in mathematics to analyse formal languages is supposed to be quite natural. The role of intuition with that approach, however, is not rejected; a certain intuition in regard to points and lines is employed in geometrical theory; reference to a speaker's intuition of a language's expressions is justified when a linguistic theory is being constructed (but this reference does not presuppose agreement of the intuitions considered).

With the reference approach, a certain formal language (or hierarchy of formal languages as gradually complicated and approximating its formal models to the realities of natural language) is built usually as a fragment of natural language interpreted in terms of the semantics of some (formal) language of intensional logic. Or else a certain formal language (for example, the language of tense intensional logic) is constructed, its semantics given, and the natural language interpreted indirectly—by indicating a certain procedure (rules) for translating the fragment of natural language into a formal language. For that one takes a sufficiently rich, representative fragment of this language as regards whether it would contain quantification in extensional and intensional contexts, reference through

proper names and definite descriptions, ambiguous linguistic expressions, etc.

An increase in adequacy of the formal model of the natural language and the introduction into it of a characteristic that increasingly embraces the realities of the language are regarded as what is achievable in principle by further development of the model's conceptual and technical apparatus.

The base syntactic abstract structure of the expressions of the fragments of natural language under consideration are given in terms of 'categorical grammar' in the spirit of Ajdukiewicz's ideas.[28] The syntactic category of the expression is considered basic or inferred (derived, composite) and is defined by what new expression it forms when functioning in combination with other expressions of the natural language. For instance, if a, a_1, ... a_n, are any categories (base or inferred), then $a/a_1 \ldots a_n$ is an inferred category. The form of the categorical symbol thus indicates what category the expression concerned is combined with, and to what category it belongs. Thus a/a_1 signifies that it is a matter of an expression that accepts an expression of category a and yields an expression of category a. The set of inferred categories is obviously infinite.

Base structures are transformed into surface structures by a number of formal syntactic operations—the 'base rules' and 'transformation rules' in Lewis's grammar, and the 'rules of elimination of logical symbols' in Cresswell's grammar. The base structure, being given in terms of categorical grammar, is particularly convenient as an object of semantic interpretation: the syntactical rules of grammar indicate the course of the application of syntactic operations (rules). Thereby the Fregean principle of functionality is realised: an expression (its meaning and sense) figure as a function that takes other expressions (their meaning and sense) as its arguments, and that produces a new expression (its meaning and sense) as its value.

Let us now pass to a general description of the semantic component proper in the conceptions of the reference semantics of natural language.

3. Meaning as a Function in the Semantic Conceptions of Lewis, Montague, and Cresswell

In David Lewis's conception,[29] meaning is treated as a construct built of elements belonging to various ontological categories. The *meaning of a sentence* is what determines its truth value (extension of the sentence) in different possible states of affairs (possible worlds), at various times, in various places, and for various speakers, etc. The meaning of a name determines, according to this conception, what object (extension of the name) is named in various states of affairs, at various times, and so on.

The category of objects includes those that exist in the real world and also those that could exist in states of affairs different from the actual one. The meaning of a common noun (substantive) determines what (possible or real) set of objects (as its extension) it refers to in different states of things, and so on. Meaning in this conception is thus a *function* in the most general set-theoretical understanding of the word, in which the domain of the function's arguments, like its range of values may consist of any entities whatsoever.

Any function, from indexes to the corresponding extensions of base categories, is called an *intension*. 'Compositional intensions' whose formation is predicated by the corresponding categorial indexes of the syntactic categories, are treated as intensions of inferred syntactic categories. If a, a_1, ..., a_n are base or inferred syntactic categories, the intension of category $(a/a_1 \ldots a_n)$ is the n-ary function from a_1-intensions, ..., a_n -intensions as arguments to a-intension as the meaning of the function. In other words the result of the concatenation $(a/a_1 \ldots a_n)$ with intension c_0, a_1 with intension c_1 ..., and a_n with intension c_n is a with intension c_0 $(c_1 \ldots c_n)$. Thus, in Lewis's grammar, in which the category of sentence S, name N, and the common noun C function as base ones, the intension of the adjective C/C is treated as any function from intension for C to intension for C, i.e. a function whose domain of arguments and range of values consist of functions from indexes to sets of objects.

The intension of the category of adverbs $(S/N)/(S/N)$ is a function from intensions of verb phrases to intensions of verb phrases, i.e. it is (even in abbreviated form!) a function which is itself a function from a function which is a function from indexicals to truth-values (!). It will readily be seen how cumbersome are the constructs representing intension for adverbs that modify other adverbs ,i.e. for the category $(S/N)/(S/N)/(S/N)/(S/N)$, etc. But one cannot help seeing the simplicity of the principles of their construction behind the complexity of these constructs. In that connection one can draw an analogy with the situation that occurs with the set-theoretical reconstruction or explication of the concept of real number, intuitively quite simple although no less complexly described theoretically.

Meaning is not always identical with intension in this model, however, because differences in meaning are possible that are not accompanied with differences of intension. For instance, one can say of logical tautologies (always true propositions) that they have one and the same intension, and that this is a constant function with the truth-value *Truth* at any index, but we cannot say (excepting the trivial case when it is a matter of one and the same tautology) that they then have *one and the same meaning.*

Thus the semantic difference between the sentences 'Grass is green or grass is not green' and 'Snow is white or snow is not white' consists in the difference of the intensions that constitute the corresponding expressions 'Grass is green' and 'Snow is white'. *Identity of intensions* can consequently be regarded as a necessary and sufficient condition of *identity of meanings* only when the intensions of components, etc., are being considered (i.e. when the level of the simple lexical components is reached as components of the terminal chain of the base structure).

> Differences in intension [according to Lewis] . . give us coarse differences in meaning. For fine differences in meaning we must look to the analysis of a compound in constituents and to the intensions of the several constituents.[30]

Meaning, for Lewis, is therefore identified with a semantically interpreted phrase-marker (phrase-structure) without its terminal nodes (peaks). Meaning is defined as a tree each of whose nodes is occupied by an ordered pair $<a, c>$, constituted from a category, and an intension corresponding to this category; and directly under each non-terminal node occupied by this pair there are two or more nodes occupied by the pairs $\langle a_0, c_0\rangle$ $\langle a_1, c_1\rangle$, ... , $\langle a_n, c_n\rangle$ such that a_0 is $(a\,a_1 \ldots a_n)$, and c is $c_0\,(c_1 \ldots c_n)$.[31]

Since meaning in Lewis's conception is identified with semantically interpreted phrase-markers, the syntactic rules of the phrases structure of categorial grammar, plus the corresponding semantic rules of projection, are themselves conditions of the *well-formedness*, or are the rules of the *meaningfulness*, of linguistic expressions.

If meaning is a tree with a single node, it is said to be simple, and all other ones complex. The latter are formed from the simple meanings represented in the lexicon of the natural language (as an inventory of simple meanings), by procedures whereby several meanings (simple or compound) are united as sub-trees under a new node. The meaning m' is called a constituent of meaning m when and only when m' is a subtree of m; m is said to be generated by a set of simple meanings if and only if each simple constituent m' belongs to this set.

Having at his disposal a fundamental definition of the truth of a sentence at a certain index, Lewis was able to pass to a definition of other important inferred semantic relations and properties of linguistic expressions, such as logical truth (as the truth of an expression in all possible worlds), analyticity (as truth at any index), logical consequence (S' is posited as the logical consequence of S if and only if S' is true in all the worlds in which S is true; then S' logically follows from S or S logically implies S'), and so on.

Lewis's semantic conception is one of the simplest referential ones employed in the semantics of 'possible worlds'. It can be regarded as a classic example of use of the conceptual apparatus of intensional logic to analyse the (non-complex) realia of natural language, and as an 'introduction'

to such an application of intensional logic. Understanding of meaning as an *intensional function* is essential to this conception, and likewise, incidentally, to other analogues of it that will be described below; an aspect of the *meaningfulness* of expressions of natural language is then taken as an aspect of their *interpretation in a definite set of intensional objects* analogous to interpretation of expressions of a formal language. It is a positive feature in this conception (and in those of Montague and Cresswell to be considered below), in contrast to the interpretative theory, that the link between *natural language* and the *world*, or rather the link between 'the semantics of language' as a theoretical construct and the world, is *already* established by a functional examination of meaning. A minimum but constructive attempt is thus made to allow formally (i.e. by means of a theory) for the speaker of the language as one of the pragmatic factors, namely as the referent of the indexical expression. This attempt is a step, in spite of its limited character, toward broadening the possibility of a logical description of language and toward understanding of the problematic of meaning itself.

Let us now pass to a description of the semantic conception of Richard Montague, one of the leading spokesmen of the referential trend of analysis of natural language.

The aim of his research was to construct a semantic theory of natural language as a theory of the logical form of its expressions that would yield possible construction of a theory of truth for any language by giving these expressions a definite form or structure. According to Montague, if the main aim of syntactic theory is to characterise (rigorously determine) the different syntactic categories of language, the main aim of constructing a theory of semantics is, namely, to describe the concepts of a true sentence and of consequence. The term 'Montague's grammar' relates, as a rule, to the ideas set out in two works, which now constitute the foundation of a certain school of formal analysis of natural language.[32]

The syntactic mode of constructing an expression containing information about the sequence and content of the syntactic operations that determine its structure, adopted

in Montague's works, is demonstrated after a recursive definition of a syntactically well-formed expression belonging to a certain category (base or inferred), and after introduction of the syntactic concept of an analysis-tree of a sentence (which is more an analogue of the 'transformational' than the phrasal structures of transformational-generative grammar).

Semantic categories (base and inferred) are introduced corresponding to the syntactic ones; the concept of a model is defined as a non-empty set E ('model structure') and f as the function of the attribution of corresponding entities from set E to base expressions. The definition of the model determines the objects that have to be correlated with the base expressions as their semantic *values* and as their possible *denotations*. By introducing corresponding semantic operations the concept of the truth of sentences relative to a definite point of reference and a definite interpretation, and the concepts of ambiguity,[33] logical truth, logical consequence, etc., are explicated in terms of the approach under study.

The semantic ideas of Montague's theory can be represented schematically as follows.

Semantic categories are introduced by an indicating (strictly speaking by a recursive definition) of the set of possible denotations D of the appropriate syntactic categories relative to the model structure, each of which is correlated with a definite semantic category or *type* (in Montague's terminology) as a type of definite denotations.

Types play a role in semantic theory similar to the role of syntactic categories in syntactic theory; what type is ascribed precisely to a given syntactic category being, moreover, a matter of intuitive, pretheoretical understanding of the language. Strictly speaking the model ascribes semantic values only to the base expressions of natural language. Definite values are ascribed to inferred expressions by means of semantic rules whose formulation is not problematic since they are the semantic analogy of corresponding syntactic rules. The set of possible denotations of individual expressions of the model structure E, for instance, belongs to type e of the entities of set E, i.e. $D_{e,E} = E$

or $f('a') \in E$, where 'a' is an individual expression, i.e. the function f correlates one and only one element E with each individual expression (for example, proper name).

The set of possible denotations of declarative sentences belongs to type t and is a set of the truth-values of binary logic $\{0,1\}$, i.e. $D_{t,E} = \{0,1\}$; the set of denotations of intransitive verbs (one-place predicates—in logical terminology) belongs to type $\langle e, t\rangle$, i.e. $D_{\langle e,t\rangle} = D_{t,E}^{De,E}$, or $f('P') = \{0,1\}^E$ where 'P' is an intransitive verb. The set of denotations of other syntactic categories of the model structure E is determined recursively and can be expressed by the formula

$$D_{A,B,E} = D_{B,E}^{D,A,E}, \text{ or } D_{0E}^{D_1 x \ldots x D_n},$$

where A, B are syntactic categories, and by X^Y, as usual, is understood the set of all functions with arguments in Y and values in X, and by $X \times Y$ is understood a Cartesian multiplication of X by Y (i.e. a set of ordered pairs such that $x \in X$, $y \in Y$).

A concept of the *intension* of a linguistic expression is introduced in view of the unsatisfactory character of the extensional model $<E, f>$ for semantic analysis of sentences that contain intensional expressions, in view, for example, of the need to allow for the time aspect of sentences of natural language. In the last case, for example, it appears from examination of the grammatical category of past time that it cannot be proposed as a truth-functional operator allowing for the extensional meanings of the sentences as their possible denotations in the model $<E, f>$. The truth-value of sentences referring to the past thus does not depend only on the truth-values of their analogues referring to the present; the truth-value of the former at the moment of i depends on the truth-values of the latter at moment of time different from i.

Discovery of an analogue of the structure of time operators to the structure of modal operators determined the fact that a set of factors in relation to which extension of the corresponding linguistic expression had to be determined, was broadened by moments of time. Therefore, instead of the system $<E, f>$ *a system* $\ll E, I, \langle\rangle, f\rangle$, called

an '*interpretation*', is used, while $\langle E, I \rangle$ is correspondingly the '*interpretation structure*', in which I is a non-empty, linearly ordered set of time moments (ordered in this case by the relation $<$). In a broader understanding I can be regarded as a set of possible worlds. In this connection, especially on the plane of ontological assumptions, it is important to note that the essentially abstract character of this theory consists in this assuming both a diversity of interpretation attributions and a diversity of interpretation structures without thereby deciding in advance what sets of entities or possible worlds are 'correct', or 'marked' for interpretation of a given natural language.

The role of interpretation consists in ascribing intension, or meaning to linguistic expressions. Correspondingly the model in the understanding $\langle E, f \rangle$ becomes a pair $\langle\langle E, I, \langle\rangle f \rangle i \rangle$, in which $i \in I$: this is the ascription by means of definite functions, called intensions, of possible denotations (in the indicated sense) to linguistic expressions in respect to I. The intension of the sentence 'Today is Wednesday', for instance, is a function from I to a certain truthvalue as an extension of this sentence at a certain moment of time, and the intension of an individual expression (in this case a proper name) for example 'Ronald Reagan' presupposes a constant function from I to a definite member of a set E, in contrast to the intension of a definite description of 'the President of the United States' that has different values at different moments of time or in different possible worlds. It is suggested in general that functions that correlate with individual expressions are not necessarily constant; N and M as intensions of the individual expressions '*a*' and '*b*' may correspondingly have the same functional value in some but not all $i \in I$. It is that which explains the informativeness of statements of identity (like 'The morning star is the evening star').

For each semantic type A for the interpretation structure $\langle E,I \rangle$ a definite type of intensions $\langle s, A \rangle$ is affirmed as the *type of senses* corresponding to expressions of type A. The concept of possible denotation is thus broadened by introducing a new category of semantic types. $D_{\langle s, A \rangle, E, I}$ is understood as the function $D^{I}_{A, E, I}$, in

which $D\langle_{s,\ A}\rangle$ is a set of possible denotations of the semantic type $<s, A>$. The set E^I, for instance, with regard to the interpretation structure $<E, I, <>$ is a set of possible denotations that are intensions belonging to the semantic type $<s, e>$ and related to individual expressions; in other words it is a set of *'individual concepts'*. The *intension of a sentence,* or *proposition*, relates to the semantic type $<s, t>$, the intension of an intransitive verb to $<s, <e, t>>$ etc. (for instance, if *'P'* 'goes', then the intension of *'P'* is a function N such that if i is a possible world, $N(i)$ is a function M from the entity to the truth-values such that $M(x) = \mathrm{I}$ if and only if x goes in world i). The intension of adjectives is regarded as a function from properties to properties, since they modify a common noun (or the phrase of a common noun) and yield new common nouns (or noun phrases), and belong to the semantic type $<s, \ll s, <e,t\gg, <s, <e, t>>>>$ etc.

Two modes of ascribing semantic *value* to a linguistic expression *'a'* are thus examined; along with the extension $Ext\langle\langle_{E\ ,I,\ <}\rangle_{f>,\ i}$, of the expression *'a'* the intension $Int\ \langle\langle_{E,\ I<}\rangle,\ _{f>}$ *'a'* of expression *'a'* is examined. With that approach the concepts of extension and intension prove to be mutually determinable: $Ext\langle\langle_{E,\ I<}\rangle_{f>}$ i *'a'* $= N(i)$ in which $N = Int\ \ll_{E,\ I,\ <}\rangle, f>$*'a'*, and in general if $Ext\ \ll_{E,\ I,\ <}\rangle, f>, i,$ *'a'* belongs to type 'A', then $Int\ \ll_{E,\ I,\ <}\rangle,\ f>$, *'a'* is a function N from I to the set of possible denotations of type A such that $N(i) = Ext\ll_{E,\ I,\ <}\rangle, f>, i$ *'a'* for all $i \notin I$. This mutual determinability of intension and extension signifies the following. (1) One of these concepts can be taken for a recoursive definition; then it is correspondingly a matter of ascribing the syntactic category by means of a certain function of a certain semantic type as a semantic type of expressions belonging to the given syntactic category (and then, for example, if *'P'* is an intransitive verb, and *'a'* is an individual expression, $Int\langle\langle_{E,\ I,\ <}\rangle,\ _{f}\rangle$ *'Pa'*$= M$, where M is the function from I to $\{0,1\}$ such that $M(i) = (Int\ \langle\langle_{E,\ I,\ <}\rangle,\ _{f}\rangle$ *'P'* $(i))\ (N(i))$, in which $N = Int\ \langle\langle_{E,\ I,\ <}\rangle,\ _{f}\rangle$'a'). (2) Intensions can be introduced

into the semantics *quite naturally* on the basis of extensional theory.

The function f determined by interpretation not only ascribes semantic *values* to base expressions but also attributes definite semantic operations to syntactic operations as n-ary functions from possible denotations to possible denotations. At the intensional level the effect of these semantic functions is reduced to the effect of some intensions on others. Thus, if N_1 has a semantic type, $\langle s, \langle A, B \rangle\rangle$, and N_2 the semantic type $\langle s, A\rangle$, and $i \notin I$ ($N_1(i)$ in this case has the type $\langle A,B\rangle$, and $N_2(i)$ the type A), then it is a matter of intensional application of N_1 *to* N_2, the result of which is an intension M of type $\langle s, B\rangle$ such that $M(i) = (N_1(i))(N_2(i))$. Thus, if '*P*' ('goes') is ascribed an intension N_1 of type $\langle s, \langle e, t\rangle\rangle$ and '*a*' is ascribed an intension N_2 of type $\langle s, e\rangle$, then '*Pa*' has an intension that is the result of intensional application of N_1 to N_2.

The two following methodologically interrelated questions are essential, in my view, for an assessment of Montague's semantic conception and his contribution to solution of the tasks of logico-philosophical analysis of natural language. The first, the more general from the methodological standpoint, concerns understanding of the tasks of the semantic theory of natural language. The second, theoretically more specific but no less important methodologically, relates to the semantic and syntactic status that proper names and, in general, individual expressions get in it (I shall return of discussion of this matter in a broader theoretical context in Ch. III).

Successful solution of the principal task of semantic theory consists, in Montague's view of it, in a theoretical explanation of (1) how different *forms* (*types*) *of meanings* are linked with different syntactic categories, and (2) how the meaning of an expression depends on the meanings of its constituents, and consequently determines the conditions in which one sentence or another is true. However, this theory does not provide an explication of the intracategorial semantic differences of descriptive expressions of natural language (in contrast to logical ones). That is an essential drawback of it that limits its explanatory possibilities in

principle. Montague's semantic theory does not provide an explanation of the meaning differences of any two expressions of natural language belonging to the same (descriptive) syntactic category (for example, the verbs 'to go' and 'to run', which are differentiated by meaning (which is registered in a dictionary; but the compiling of a dictionary calls for a certain *knowledge of the world*). Montague referred this explanation to the sphere of lexicography concerned with the compilation of dictionaries, and having (as he suggests) to do with concepts belonging to different fields of scientific and ordinary knowledge. One must stress that, apart from the inadequacy of this approach to the intuition of speakers of natural language, the theoretical ignoring of intracategorial differences entails extremely problematical consequences, as well for application of the concept of a *possible world* as a basic one in the theory; in that case intuitively contradictory propositions (like 'Fido is white' and 'Fido is black') obviously also describe a certain possible world.

It is necessary to draw intracategorial distinctions in Montague's theory in general only in so far as they ensure the existence of a semantic rule for each syntactic rule of the natural language. The distinguishing of these differences is limited essentially by those syntactic categories (i.e. the base expressions containing them) that are essential (in the general project of constructing a definition of truth for sentences of natural language) for defining the concept of general validity and for reconstruction of the concept of a logically correct inference, proceeding from the *traditional* understanding of logical form. Therefore, although the quantifiers 'each' and 'some', for example, belong to one syntactic category, quite definite meanings are ascribed to them for purposes of explicating universal and existential quantification. These expressions are treated as logical constants and their denotation does not depend on models in contrast to expressions that function as logical variables (their denotation is relative to the model concerned). It is proposed to achieve differentiation of the semantics of other base expressions important for the theoretical reconstruction of intuitively correct inferences, and equally to restore

logically correct inferences, 'neutralised' by the theory without giving them the status of logical constants and by introducing *'meaning postulates'* (I shall speak about the unsatisfactory nature of this approach below).

In this theory proper nouns are 'logically determinate' as regards the interpretation concerned, i.e. their extensions are understood as invariant as regards possible worlds and the context of their use, which is expressed by the formula $(x)\Box(x=a)$ in which a is the name, (x) the universal quantifier, x an individual variable, $\Box$ the modal operator of necessity.[34] In other words, it is supposed that there is a *fixed set of individuals* (as possible denotations of names) that is the range of values of the functions that constitute their meanings. Thus, if i is a possible world and E_i the set of objects existing in i, then the union of sets E_i for all i in the given interpretation can be treated as a set of all possible individuals.

The semantic status of names in Montague's works has undergone significant changes, which is associated with investigation of the analogy between names and quantifier expressions (phrases). The starting point of this notion is intuition, linked with the traditional understanding of the analogous character of the role of names and quantifier expressions as a noun phrases; for instance, 'John is walking', 'The man is walking' are treated as having one and the same form. In first order logic, of course, quantifiers are represented as not having independent meaning;[35] universal formulas are formed by substitution of an expression that has the form 'every a' (in which 'a' is a common noun phrase) in place of the variable in the formula: '$P\ x$'.

The interpretation of quantifiers as independent syntactic categories is realisable in logic of a higher order as second-order properties. In Montague's theory, in which properties belong to the type $\langle s, \langle e.\ t \rangle\rangle$ quantifier expressions like 'a man'[36], 'every man', 'no one', etc., belong to type $\langle s, \langle\langle s, \langle e, t\rangle\rangle, t\rangle\rangle$. Property '$P$' is ascribed to the expression 'a man', or rather to the appropriate object if and only if there is a man in regard to whom 'P' is true. Correspondingly, the sentence 'The man is walking' is true if and only if 'is walking' is a property rep-

resented by the expression 'the man'. The sentence 'Mary loves someone' is true if and only if the property of 'being loved by Mary' is one represented by the expression 'someone'. 'John believes that Mary hopes someone loves her' is true if and only if the property expressed by the formula 'John believes that Mary hopes *x* loves her' has the property represented by the expression 'someone'.

Quantifier phrases combine with other constituents of a sentence in the same way as a name joined (or combined) with an intransitive verb forms a sentence or, connected with a transitive verb, a name forms an intransitive verb phrase, and the pronouns contained in a sentence (as in 'John thinks that Mary is talking about him') are linked by definite proper names. Correspondingly the sign in the canonic notation representing an quantifier phrase is connected with the formula relative to certain variable contained in it, forming a new formula. The content of this connecion, according to Montague, thus explains two possible interpretations *(referential* and *attributive)* of the corresponding quantifier expressions (as in the sentences 'John seeks a unicorn', 'John talks about a unicorn', 'John owes Smith a horse', etc.).[37]

Drawing an analogy between proper names and quantifiers led Montague to ascribe the same syntactic category and the same semantic type, namely $<<<s, <e, t>>, t>>$, to proper names.[38] The reverse way, namely to treat the semantic status of quantifier phrases as designating definite entities, is obviously incompatible with intuition. As a result of this unifying approach a proper name is treated as expressing the *property of properties*, which, even if it is artificial, does not, however, lead to revision of the truth-values of the sentences. Thus the name 'John' is treated as expressing the property of one of John's properties, and then the sentence 'John is walking' is true iff the property 'is walking' is a property of John's. But that interpretation yields such logically undesirable consequences as, for example, denial of the validity of 'John is a bachelor or John is not a bachelor', the attribution of ambiguity to such sentences as 'John loves Mary', etc. (These consequences, as I have already noted, are supposed to be elim-

inated by the introduction of corresponding *meaning postulates*.)

The artificiality of this approach from the intuitive angle is manifested in the very complicated interpretation of the most elementary sentences, in regard to which one can speak of a peculiar treatment of the understanding of predication. Thus, in the case of the analysis of the sentence 'John is walking', the property of the individual concepts expressed by the verb 'is walking' has a second-order property expressed by the proper name 'John', i.e. it is a matter in a set-theoretical interpretation not of John's belonging to the set of the walking but on *the contrary* of including walking in the set of John's attributes. A consequence of that approach is denial of the validity of arguments like 'John is mayor of the town. John is running. Consequently the mayor of the town in running'. That is the high price that has to be paid for such a unification of the approach under discussion.

Finally, in Monague's broadened understanding of semantic theory, which embraces analysis of sentences containing indexicals ('now', 'here', 'there', 'he', 'it', etc.), and which integrates certain *pragmatic* aspects of the use of natural language into semantics, the intension of an expression is examined not only in regard to a possible world i but also in regard to a certain context of its use j; one correspondingly speaks of extension of the expression in regard to the pair $<i, j>$. The interpretation structure then contains a set of *contexts of usage* J as a supplementary constituent. This set may be, for example, a breakdown of I into subsets connected by the relation 'less than' $(<)$. By interpretation is thus understood the structure $\ll E,I,<, J>,f>$ in which f is a function of assigning that also allows for the factor of *context of use*. Montague called these definite with respect to possible worlds and contexts of use entities *meanings* in contrast to the *senses considered above*.

Intuitively the grounds for distinguishing between meanings and senses are that meanings are the main points that serve to interpret expressions, so that, if the interpretation of a complex expression is a function of the interpretation of its constituents, the meanings must not be identified with

functions just from possible worlds. Senses, in turn, are those intensional essences that are signified by the expressions.[39] In other words, although extensions are ascribed to expressions about possible worlds and contexts of use, only the former enter the construction of possible denotations. This differentiation of sense and meaning should not be taken for the classic difference (drawn since Frege's time) between *meaning* and *sense*. The difference considered here is related to the supplementary difference between terms that signify *intensional entities*.

The rich formal resources used by Montague make it possible to some extent to embrace the factor of the *context of their use* important for defining the meaning of linguistic expressions, and to describe it by means of them. Examinaion of this factor makes it possible, for instance, together with the concept of semantic validity, to construct a definition of the concept of *pragmatic validity*, i.e. of the truth of an expression in all cases of its utterance. A sentence is supposed to be pragmatically valid if, for all interpretations

$\ll E,I,<,\ J>,\ f>Ext\ \langle\langle_{E,\ I,\ <,\ J}\rangle,\ _f\rangle,\ \langle_{i,\ j}\rangle$ 'a'=1

for all indexes $< i, j, >$, such that $i \in j$. It is thus possible that a pragmatically valid sentence is not semantically valid ('I am', 'Yesterday has already passed', etc.). Thus, if x is an indexical expression, and 'P' the predicate, $Int\ \langle\langle_{E,\ I,\ <,\ J}\rangle,\ _{f\ >,\ i}$ 'Px' differs from $Int\ \langle\langle_{E,\ I,\ <,\ J}$ $f>,\ j,$ 'Px', if '$j \neq j$' (for example, if x is 'yesterday', x is interpreted so that, in a certain context of use f, x functions as a proper name for the antecedent j, and then $f\ (\text{'}x\text{'},\ j) = N$, where $N = Int\langle\langle_{E,\ I,\ <,\ J}\rangle, f>, j$ is a function from I to E such that for all $i \in I\ N(i) = x\ (j)$. Although the proposition expressed by 'Px' changes in accordance with the context of use, 'Px' is always true when it is uttered.

Montague's semantic studies of natural language, like his syntactic ones, are distinguished by the strictness of the theoretical elaborations achieved by definition of the function of translation of expressions of this language into the language of intensional logic, and by a well-studied logical system characterised by great expressive possibilities. The

value of his theory lies in the breadth and significance of the range of grammatical phenomena encompassed by the analytical procedures proposed in it. One can say that natural language has received the fullest (in comparison with other theories) and most rigorous description in it, while the method of formalisation employed yields the possibility of speaking in scientific language about those semantic aspects of the sense aspect of natural language that were long considered inaccessible to rigorous description. That is essentially reinforced by the circumstance that the formal apparatus of analysing meaning developed in this theory is oriented to correlation of language and the world and not simply to an autonomous analysis of sense. It is, on the one hand, just keeping to the idea of formalisation, which excludes vagueness, indeterminacy, and incompleteness of the formal description, and, on the other hand, the complexity of the linguistic realia being described, that simultaneously determine the expliciteness and complexity of Montague's semantic conception.

At the same time the methodologically unsatisfactory consequences of this analysis (incidentally, like Cresswell's conception, still to be examined) is the *postulating of an absolute universe of discourse* correlatable with expressions of natural language, which stems from an uncritical understanding of the analogy between formal and natural languages as systems of signs interpretable in the given set of semantic objects. This understanding is the result of an interpretation of the *very natural language* as if it were simply a more complex case of a formal language. Expressions of the natural language are interpreted and certain semantics ascribed to it (as I shall show below) not on some absolute set of semantic essences, the same for all speakers of the language, but on the basis of the information speakers have at their disposal about the world and which has the character of a certain system of their beliefs and knowledge about the world.

Cresswell also undertook an intensional analysis of natural language built on a number of formal categorial languages as theoretical approximations to natural languages.[40] The conceptual closeness of these studies frees me from

having to set out the general theoretical principles shared by Cresswell, and to refer only to those aspects of his semantic ideas that witness to some extent, to the originality and constructiveness of his approach.

As a first approximation to formal analysis of the concept of meaning as an intensional object assigned by a certain function to a sentence of natural language, the *proposition* is treated *as a set of possible worlds* (also encompassing a number of conceptual factors). Accordingly, proposition p is presumed to be true in a possible world w if and only if this world enters the examined proposition as a set of worlds, i.e. iff $w \in p$. The proposition thus is presumed to be logically necessary (logically true) if it contains all possible worlds as its members and logically impossible if it is false in all possible worlds and is then identified with an empty set; the one proposition entails the other if and only if it is a sub-set of the other; propositions are considered incompatible if and only if they do not contain a common possible world.

Unlike Lewis and Montague, Cresswell tries to analyse the concept 'possible worlds' in terms of the concept of a set of 'basic-particular situations' as a set B of all space-time points; what is meant are basic situations not in an epistemological sense but from the standpoint of the role they play in the theory. Subset w of set B is then understood as determinating *possible world.*

A consequence of identifying a proposition with a set of possible worlds is that propositions must be treated as identical if and only if they are the same set of possible worlds. That in turn leads to an intuitively unsatisfactory claim that propositions are identical if and only if they are *logically equivalent* (because propositions are logically equivalent if and only if they are the same set of possible worlds). The unsatisfactory nature of that approach is obvious when we analyse propositional attitudes (for example, contexts of belief) as logically equivalent propositions.

The approach considered by Cresswell as an alternative, by which a set of possible worlds was divided into 'possible' and 'impossible', 'classical' and 'non-classical', and two

propositions were considered logically equivalent if and only if they contained the same classical worlds, although possibly differentiated into other, non-classical worlds, is unsatisfactory. That is because (1) a postulate is introduced about worlds that are impossible in a certain sense, and the problem of the criteria for identifying and differentiating them are reduced to their role in the theory, (2) some worlds are recognised as more logically possible than others, which contradicts the idea of the analysis of possible worlds in terms of space-time points (impossible worlds cannot, in that case, be sets of space-time points).

Finally, Cresswell re-examined the definition of a proposition as a set of possible worlds. It is not propositions, but what are called '*protopropositions*', that are analysed in terms of a set of possible worlds, and so employed to define logical equivalence, necessity, consequence, and other logical relations. Then logically incompatible protopropositions form what he called a *heaven,* and not a world. Although no heaven is a world, some heavens correspond to worlds, since the proto-propositions forming them together characterise a certain world; the concept of a heaven-world is introduced as a set h of proto-propositions for which there is a certain world w such that for every proto-proposition h_i, $h_i \in h$ iff $w \in h_i$. The proposition is then defined as a *set of heavens.* Two propositions are regarded as logically equivalent if and only if they are true in the same worlds. (If p and $q \in P$, they are logically equivalent iff $p \cap C = q \cap C$, in which P is a set of propositions, and C a set of heaven-worlds, and p is logically necessary iff $C \subseteq p$; p entails q iff $p \cap C \subseteq q \cap C$, and so on.) Propositions are taken as identical if they contain the same heavens, but not necessary if they contain the same heaven-worlds (i.e. $p \cap C = q \cap C$ is possible, but $p \neq q$).

Reference is not made to language during the analysis of propositions and definition of their relations. Language occurs only in the examination of synonymy of linguistic expressions. Thus '*a*' and '*b*' are taken as synonymous for a given interpretation $<P,V>$ (in which V is the function of assigning semantic values) iff $V('a') = V('b')$. Although synonymous propositions are logically equivalent, the con-

verse does not necessarily occur for certain models, and in theories of referential semantics in general the examination of propositions as functions from possible worlds to truth-values is not linked in principle with analysis of language, either natural or artificial. The status of propositions is such that they can be treated abstracted on the one hand from concrete languages and their linguistic formulations (i.e. sentences expressing them), and on the other hand, from those speech acts in which they figure (statements, orders, questions, etc.). *But since it is a function of natural language to express propositions, semantic theory must specify rules that* correlate sentences of this language with the propositions they express. Abstracted consideration of propositions helps in that case to get a clearer understanding of the relationship between these entities (linguistic expressions and propositions).

Cresswell understands an individual concept as the value of the function of interpretation of individual expressions, i.e. as a function (possibly constant) from possible world to objects, and, like Montague, examines the properties of these concepts. The concept of an object (physical object, event, state, process) or (by analogy with basic-particular situations) of a basic individual, is defined in turn as the function r from a possible world w to a part of that world (the broad understanding of the term 'basic individual', moreover, did not oblige him to adopt a requirement of a space-time continuity of basic individuals). The value of function r in a possible world w is called a '*manifestation*' of r in w or, according to the tradition of referential semantics, the *extension* of r in w. Cresswell deliberately avoided use of the term 'extension' in this context because it prompted the idea that the individual is the value of the function and not, as he suggests, the *function itself*. In his formal semantic model the existence of the same basic individual in more than one world is assumed, and with that its manifestation can be different in different possible worlds, which is equivalent to a consideration of these possible worlds in which this individual exists but possesses other properties.

Finally, Cresswell introduced the concept of an *open*

proposition for analysis of linguistic expressions containing indexical elements (for example, 'I am the master of this house'), (by analogy with Quine's 'open sentences'[41] as formulas containing free variables—at least one), as a function of what were called above 'contextual factors' of the use of linguistic expressions or, according to Cresswell, a function from the *properties of utterances* to propositions. He called these functions the 'meaning' of the proposition, and the proposition that was the value of this function, the 'sense' of the proposition (of Montague's similar approach).

The separation of *sense* and *meaning* of sentences at the intensional level in general depends on whether it is expedient in this conception to differentiate the *semantic* and *pragmatic* aspects of language. In the case of the theoretical integration of these aspects (as in Montague's semantics-pragmatics) a proposition is treated as a function from possible worlds and contexts of the use of linguistic expressions to truth-values. In the case of their separation sentences interpreted by semantic rules are treated as functions from *contexts* (the pragmatic aspect) to *propositions*, i.e. as functions from possible worlds to truth-values. With the integrating approach, for instance, the sentence 'I'm the master of this house' must be qualified as potentially *infinitely polysemic*, which is unacceptable from the intuitive standpoint. The proposition expressed by this sentence depends on several contextual factors, on who is pronouncing the sentence and on what the pronoun 'this' refers to. The theory must, moreover, contain a *finite* list of these factors (although their reduction to a finite number is not possible).

With the differentiating approach adopted by Cresswell the meaning of the sentence concerned may be called 'fixed': if K is a set of contextual factors relevant for defining the proposition, then M is a function from K which emerges as the *fixed meaning* of the sentence; consequently the value of the function M is the proposition of the sentence being examined.

I suggest that the constructiveness of this differentiating approach consists precisely in its singling out the level of *fixed meanings* as a special level of intensional entities, a

special level of concepts. The indexicals most clearly witness to the existence of this level. The understanding of '*I*', for instance, is assimilation of the concept 'I' as the meaning of 'I', i.e. as the function m_s, such that if k is the contextual factor specifying the speaker s, then $m_s(k_s)$ is s. In other terms mastery of the concept 'I' is mastery of the concept of the speaker or the 'first person' as the fixed meaning of 'I'. Mastery of that concept by a speaker of the language signifies understanding of the term 'I' *in whatever sentence it is met*, without the necessary knowledge of *who* its referent is. It is also obvious that it is by starting from the meaning of the sentence as a *fixed meaning*, or *open proposition*, that the sentence containing indexicals is translated from one language into another (as, for example, in the series mentioned above 'мне холодно', 'I am cold', *'j'ai froid'*, *'tengo frio'*, *'man šalta'*, etc.).

The effectiveness of use of the concept of an open proposition is also obvious when formalising the semantics of such sentences as 'The present King of France is bald', i.e. of propositions that contain a *false presupposition* (compare with the discussion of Strawson's conception below); the absence of the necessary contextual factors in the real world (in this case of the individual referred to by the definite description 'the present King of France') deprives such sentences of the property of *propositionality*, but not of meaning, i.e. *meaningfulness*.

The 'logic of demonstratives' of natural language constructed by Kaplan belongs to this approach of differentiating intensional entities.[42] The concepts '*character*' and '*content*' of expressions similar to the pair of concepts 'fixed meaning' and 'sense' examined above are introduced into the theory. The sentence 'I am here now' for instance, not only has different truth-values in accordance with what the situation is, by whom it is uttered, and where and when, but also represents *different propositions* (formally: depending on what ordered quadruple this sentence is interpreted in relation to: viz, $\langle w, x, p, t \rangle$ in which w is a possible world, x is a person, p is a place, and t is a time).

From the standpoint of Kaplan's theory 'character' is

the component of the meaning of an expression that determines how its 'content' is determined by the context of its use. 'Content' is thus treated as function from possible worlds to extensions, and 'characters' as function from contexts to contents. The character of the expression 'I' is thus a function (or rule) that correlates each context with such a 'content' as is a constant function from possible worlds to the agent of the context. The 'character' of the expression 'I' is correspondingly a function from contexts to individual concepts but not from context to individuals.

As regards the sentence 'I am talking now', this means (1) that utterance of this sentence or of a sentence of this type expresses different 'contents' (propositions) in different contexts. (Correspondingly sentences with a different character, viz., 'I am talking now', 'You are talking now', may have the *same* content in different contexts). (2) Utterance of this sentence in most contexts expresses a factual proposition (i.e. one that depends on facts). (3) Utterance of this sentence expresses a true proposition in all cases (i.e. a proposition that is true in the world of this context).

A general conclusion follows, that it is necessary to differentiate the information *expressed* from the *means* by which it is expressed; what is expressed, moreover, depends on the character of the sentence, but one cannot identify content with character since what is expressed may also depend on the context of the use of the sentence. A partial conclusion is that the sentence concerned is *analytical* (i.e. true by virtue only of its meaning), although it does not express a necessary, logically true proposition; there is no necessity for my speaking.

Generalisation of the various attempts to formalise the meaning of sentences that contain indexical expressions shows that reference to the context of their use is inevitable when formalising their meaning, and fosters the introduction of essential intensional distinctions. But it is by no means a specific feature of the analysis of *just these* sentences. Such a reference is only one, though an important, consequence of examination of the relation of natu-

ral language and the world in general. In fact, an adequate understanding of this relation, from my point of view, presupposes reference to speakers of the language not only as referents (extensions) of the corresponding indexical expressions, but also *always* as *subjects who interpret* linguistic expressions (indexical ones included) on the basis of certain information they have at their disposal about the world. The conceptions of meaning examined above do not contain such a reference to the speaker of the language. Although in these conceptions meaning is treated in terms of truth-conditions, knowledge of these conditions is not considered part of the information a speaker of the language has about the world, but part of the information that forms the 'semantics of the language' and represents the speaker's knowledge as a definite theoretical construct (if it is proper at all to exploy this term here).

4. The Generative Conception of Semantics: 'Natural Logic' as a Theory of Human Argumentation

In both the interpretative and generative conceptions of semantics put forward in the context of transformational-generative grammar,[43] a fundamental role is assigned to the concept of the logical form of an expression, on which the deduction relations of linguistic expressions depend. In studies in generative semantics the construction of a semantic theory of natural language is regarded primarily as construction of a *theory of universal argumentation* carried on in this language, and as construction of a 'natural logic', an exercise in 'the empirical study of the nature of human language and human reasoning',[44] i.e. as striving for an adequate description and explanation of the capacity of speakers of the language to produce sentences and understand the logical relations between them. It is suggested that such a theory should not only deal with formalisation of the meaning of expressions such as 'and', 'or', 'if', 'then', 'not', 'each', 'some' (as inclassical logic) but also be concerned with concepts of necessity, obligation, belief, knowledge, intention, ordering, injunction, etc. (as in modal and epistemic logic), and also with

a set of others depending on how many simple concepts the natural language can be reduced to in general.

In this conception the rules that generate correctly constructed expressions of natural language, distinguishing them from incorrectly constructed ones and prescribing a certain structure to them, are regarded as *directly correlating* these expressions with their logical form, or semantic representation.

> The rule of a generative grammar [Lakoff wrote] is not merely to penetrate the grammatical sentences of that language, but also to relate them to their logical forms.[46]

That is equivalent to saying that the methods of transformational analysis are adequate for defining the logical form of linguistic expressions. In the understanding of the generative conception of semantics deep structure yields place to *logical,* or *semantic,* structure. The latter is understood formally as a phrase marker (tree diagram in the mathematical sense), the correctness of whose structure is determined by corresponding postulates.

Logical structure, formally represented in terms of the logical categories of sentence, predicate, and argument, is taken to be a *universal* structure in the sense that its ultimate constituents—atomic predicates—are taken to be primitive *semantic universals.* The set of atomic predicates is considered as finite, although neither the completeness of the elaboration of membership of this set nor the adequacy of the predicates themselves is called in question at this stage of the theory's development. 'Natural logic' itself is also taken as universal, since its aim is to characterise the meanings of all primitive concepts that occur in natural language, 'to characterise rational thought itself'.[40] By means of the rules of transformation the meaning of the lexical items introduced at various levels of the deduction of surface structure is built up from universals. The need to affirm certain *meaning postulates* (axioms, rules of inference) of 'natural logic' in order to effect the procedures of deduction is eliminated ('to remember' is deduced, for example, from the predicates 'to perceive' and 'to be like', and 'to forget' from the predicates 'to stop' and 'to know', and so on).

But use of *meaning postulates* is inevitable in view of the need of indicating the relations between *atomic* predicates.

The essential difference between the generative conception of semantics and the interpretative one is that generative semantics is concerned with the generation of well-formed expressions of natural language as correlated with a certain base or logical structure *relative to a given context* as a possible world, rather than with the generation of well-formed expressions simpliciter. In other words it is concerned with the generation of certain relations between expressions of natural language, logical structures, and the contexts of the use of linguistic expressions: with *relaivising the concept of a meaningful expression to the context of its use* and primarily with respect to *conceptual premisses about the state of things in the world,* premisses shared by members of a specific linguistic community. These premisses are included in the semantic structure of expressions of natural language and at the same time are regarded as part of the linguistic competence of speakers of the language. The sentence 'My birth enjoys my pains', for instance, is taken as correct by a member of the tribe of Papagos who thinks that events possess reason.

In formal terms it is a matter of generating abstract objects that are not sentences but ordered triplets $<S.LS, C>$, in which S is a sentence, LS its logical structure, and C the finite set of logical structures characterising a certain conceptual context. Although it is also recognised that it is impossible to refer in a certain inference to *all* the contexts that the sentence could be used sensibly in, it is taken that some *types* of these contexts may be ultimately characterised by means of *meaning postulates* and linked with the logical structure of the sentence by 'transderivational rules' of grammar. So, let S' be a sentence with the logical structure LS'. By employing the inference that related S' *and* LS', we *can examine what contexts* S' is well formed in, i.e. is meaningful. Let us assume that it is correctly constructed in respect of each context C', such that $C' \cup \{LS'\} \vdash Q$ for a certain logical structure Q, i.e. the set of logical structures C' together with LS' entails Q. It is necessary for such a generalisation to specify the

form of Q, to refer to the relation of consequence and to quantify over the contexts C'.

Reference to the significance of contextual considerations in order to determine the correctness of the construction, i.e. meaningfulness, of expressions of natural language signifies *leaving the system of this language for the world of extralinguistic realia*, at least for the world of speakers' conceptual premisses. Formally this means that the meaning of a sentence is considered fully given only when the logical structures generated by the basic rules of grammar are truth-interpreted in terms of possible worlds. In the terms of that interpretation $C' \cup \{LS'\}$ entails Q iff the truth-conditions Q are satisfied in all models, and at all points of reference in which the truth-conditions of C' and LS' are satisfied.

Apropos of quantification over logical structures, non-existent individuals, and possible worlds, and the suspicion of acceptance of unusual entities stemming from it (in the context of examination of the ontological assumptions of 'natural logic' as a logical system) Lakoff wrote as follows:

> Recall that natural logic is a theory, a theory about the logical structure of natural language sentences and the regularities governing the notion of a valid argument for reasoning in natural language. That is, it is a theory about the human mind, not a theory about the universe. If natural logic requires a possible world semantics, then that might seem that people conceive of things in terms of possible worlds, not that the physical universe contains possible worlds. . . .This is not to say that the ontological commitments of a natural logic are irrelevant or uninteresting. Quite the contrary. Though a natural logic, *if one could be constructed* [my italics—*R.P.*] would not make claims about the universe, it would make claims about the way human beings conceive of the universe.[47]

The attempt to include the concept of context in the semantic structure of linguistic expressions in the form of certain meaning postulates, and equally the truth-interpretation of the base structures of natural language, undertaken with this approach in terms of possible worlds, are evidence on the one hand of a more constructive understanding of the functions of this language in the world and

in communication than with an interpretative analysis. This attempt reveals a desire to overcome the intralinguistically closed character of the theory and to get out into the non-linguistic world essential for understanding language. On the other hand, the task of constructing a general theory of reasoning in natural language makes it inevitable to assert the *universal* character of the semantic constituents of logical structures. As a result passage to speaker's conceptual premisses appears only as an attempt to formalise one of the most difficult sectors of the 'semantics of language'. Or rather, considering the role assigned to the notion of conceptual premisses in this conception as part of speakers' linguistic competence, one can say that this conception presupposes a relativisation of the concept 'semantics of language' such as permits a certain plurality of the 'semantics of language' correlated with certain types of its speakers' premisses about the world. But such a relativisation is already incompatible with the programme of constructing a universal 'natural logic'.

5. Quine's Semantic Conception: The Indeterminacy of Translation

The semantic conception of Willard Quine, who has had a great influence on the development of modern logico-philosophical analysis of natural language, has a major place in this analysis.

His conception is characterised by non-acceptance of the intensional theory of meaning and consequently of the intensional concept of meaning as an intermediary between the expressions of natural language and the world, and at the same time as an equivalent or invariant of intralinguistic and extralinguistic transformations (primarily translation).

With a mentalist approach, the concept of meaning (according to Quine) figures in the main in two contexts: (a) when one is speaking of knowledge of the meaning of the expression (i.e. when one is speaking about this expression as *having* a definite meaning), and (b) when one is speaking of *identity* of meaning (synonymy) of linguistic expres-

sions. It is then assumed that the concept of meaning serves as an explanation on the one hand of *understanding*, and on the other as the *equivalence of the linguistic expressions*. We understand expressions, it would seem, when we know or 'grasp' their meanings, i.e. the expressions perform their function to the extent that they symbolise something *common* for the communicants of the meanings. One expression seems to serve as a translation of the other one because it is supposed that they signify *one and the same* thing, i.e. have an identical *meaning*: the translation is considered correct if it has the same meaning as that which is being translated. With that approach meaning is regarded as the analogy of museum exhibits to which labels are attached: 'To switch languages is to change the labels'.[48] The mentalist explanation, whatever formal shape it is given only creates an *illusion* of an explanation (according to Quine).

Quine also suggests that those theories of semantics in which one resorts to intensional entities (possible worlds, possible individuals, individual concepts and propositions, etc.,) to explicate meaning are equally unacceptable. The concept of meaning is adopted without sufficient grounds in these theories (according to Quine) because of its unclarity either as a primitive one or because of its being defined by other, no clearer concepts.

A scientific approach to the problematic of meaning presupposes (according to Quine) first of all elimination of the mentalist content of the concept, its exteriorisation, i.e. its introduction into the external world and explanation of the meaning in terms of speakers' dispositions to a certain verbal reaction, to a certain *verbal behaviour*. For Quine, and for proponents of the reference approach, the concept of meaning is thus inseparable from the concept of information about a certain state of affairs in the world.

(1) It is thus taken as an initial maxim that a speaker of a language understands its sentences insofar as he knows their truth-conditions. (2) Knowledge of these conditions, for example, of the truth of the sentence 'This is red', is taken to consist not in speakers' disposition to state this proposition each time he or she sees a red object, and to

deny it in all other cases, but in *a disposition to agree or disagree with this* sentence when a relevant question is asked in the presence or absence of an object.

Quine considers language a 'conceptual system' consisting of sentences situated at its various levels from the periphery to the inner, central part furthest from contacts with the physical world. The peripheral sentences of the system, or *observation sentences*, such as 'This is red', 'It is raining', etc., are points of contact of the system with physical reality and are *occasion sentences*. The truth-value of such sentences (in contrast, for example, to 'Sugar is sweet') changes in accordance with the situation, and furthermore with *intersubjectively* observed circumstances (in contrast, for example, to the truth-value of the sentence 'My head aches'). Finally, they are those sentences in respect of which speakers are agreed that the observed situation verifies them (for example, 'Here comes an old man' in contrast to 'Here comes John's old teacher').

The link of these sentences with reality is expressed in its functioning as *a stimulus for agreeing or disagreeing* with them, i.e. as a stimulus for a certain *verbal disposition*. Such agreement or disagreement in turn is governed by an inherent criterion, or standard of identity and difference, as a result of natural selection, and equally by subsequent experience in a certain social environment. Mastery of truth functions—of negation, conjunction, disjunction, etc.—is thus regarded as a process in which, as in the case of conjunction, the statement '*p* and *q*' only occurs when the speaker is predisposed to agree both with '*p*' and with '*q*'.

In other words, the fact that a speaker masters the grammatical construction '*p* and *q*' signifies, according to Quine, that he has learned *inter alia* to agree with the combination '*p* and *q*' (developed a corresponding disposition to agree), only in those circumstances when he agrees with '*p*' and agrees with '*q*'. The rule of logical consequence that leads from '*p* and *q*' to '*p*' consists in the process of mastering 'and'. That also applies to mastery of other truth-functions: 'Mastery of the principal logical habits is due to assimilation of grammatical constructs.'[49]

Mastery of natural language according to Quine begins

with observation sentences. They are also the starting point of scientific theory. The transition to *standing sentences* like 'Rain at Heathrow at 16.00 GMT, 16 February 1982' is made by means of certain linguistic and behavioural manipulations based on analogy and induction, on reinforcement and singling out of correct, adequate reactions; then one goes over to *general affirmative sentences* (for example, 'Dogs are animals'—as a result of mastery of the term 'dog', which is shown in agreement with this term in the appropriate situation and also mastery of the term 'animal', which consists in a speaker's being disposed to agree with the term 'animal' in all cases when he is predisposed to agree with the term 'dog'); to a *simple predications* like 'Fido is a dog', 'Sugar is sweet', etc.; and to various *complex sentences* that presuppose mastery of certain linguistic transformations. Further manipulations in this spirit lead, Quine suggests, to the speaker's mastery of abstract terms, and to quantification over properties, numbers, functions, and hypothetical physical particles and forces, i.e. to the known wealth of our language as a 'conceptual system'.

The transition to *standing sentences* whose truthvalue, unlike those of observation sentences, does not change in accordance with the context, is a transition to *theoretical* language, according to Quine. The theory of natural language is thus regarded here as a *theory of knowledge*. The road to mastering a language, which leads from observation sentences to theoretical ones, is regarded as the sole link there is between observation and theory, but this link, unless it is traced in the reverse direction, does not make it possible to reduce a scientific theory to simple observation; the superstructures formed of standing sentences are not reducible to observation sentences, although they are linked with them. Agreement or disagreement with such sentences is mediated by the link (possibly very complicated, through a network of other standing sentences) of these sentences with other standing sentences. It is important to note that the understanding of standing sentences is not identified with a disposition to agree or disagree with them in a certain situation: it can take place *independently* of such a situation.

In contrast to the reference theories considered above, Quine's conception of natural language is not atomistic, presupposing examination of the meaning of the sentences when they are taken out of connection with other sentences, but *holistic* (integral), according to which to understand a sentence means to know its place in some conceptual system, to understand the language to which it belongs.[50] For semantics to be philosophically significant, it must (according to Quine) be a theory of the *understanding* of linguistic expressions. That approach presupposes rejection of the mentalist concept 'to have meaning' in favour of the concept 'to be meaningful', i.e. in favour of regarding *structures formed of meaningful expressions.*

Treatment of natural language as a conceptual system also explains the sense of the metaphor employed by Quine of language as a ship at sea that we cannot quit and which can only be rebuilt plank by plank with great caution. When we want to make changes in our conceptual system, therefore, we are in the position of a person trying to repair a leaking ship in the open sea. It is impossible to dismantle the vessel completely in such a position and rebuild it.

Observation sentences are comparable with certain stimulus situations that ensure agreement or disagreement with them as an *unanalysable whole.* Their understanding and meaningfulness are not treated as dependent on preliminary understanding of the separate terms composing them; they are taken as independent of the complex network of connections constituting the natural language as a whole. The sentence 'My neighbour is a bachelor', for example, according to Quine, is thus not regarded as a relatively independent fragment of verbal behaviour in contrast, for example, to the sentence 'Here is a rabbit'; the former can only be understood in the context of the whole complex of its connections with other sentences and ultimately *with the whole language.*

The equivalence of linguistic expressions with that approach is explained by means of the concept of *identity of dispositions.* It obviously relates primarily to observation

sentences, because the speaker of a natural language can express his agreement or disagreement with standing sentences in any circumstances. Quine concluded from this that there is no satisfactory concept of equivalence (in the strict sense of the word) for standing sentences.

That point of view gets methodological interpretation through examination of the *phenomenon of translation*. According to Quine, there are alternative schemes (systems, hypotheses) of translation that are incompatible with one another but are equally compatible with the dispositions of speakers of the languages concerned to verbal behaviour. That applies above all to standing sentences and in itself is *a phenomenon of the indeterminacy of translation in general*. In its radical version it is a phenomenon of *the indeterminacy of radical translation;*[51] i.e. of translation from the language of a technologically developed society into the language of some backward people.

The set of possible observations of verbal reactions compatible with systems of *analytical hypotheses of translation* that are incompatible with one another, is similar to how a set of possible given observations of nature made, or not made, is compatible with physical theories that are incompatible with one another. Such a situation naturally cannot arise in mentalist semantics because of the absolute, constant, *universal* domain of meaning postulated in it as the initial.

According to Quine, radical translation should begin with observation sentences that have a relatively direct link with the physical conditions of the external world. But the transition to expressions of a language not directly linked with the conditions of the external world that would act as a stimulus for their adoption, also to expressions in regard to which the conditions of the external world do not in themselves predetermine any single translation, may only be realised by adopting a definite *analytical hypothesis* of translation. Thus, when a linguist who is studying the language of a native says 'Gawagai', pointing to a rabbit running across a field, and gets the assent of a speaker of this language, he can, for example, translate the native's expression as corresponding to the expression 'rabbit', 'an in-

tegral part of a rabbit', 'a temporal segment of a rabbit', or something else, and all these translations will have an identical stimulus meaning.

The point is that when a linguist points to a rabbit he is also pointing to part of it, etc.; when the native sees a rabbit he also sees part of it and vice versa, etc. The linguist can only be satisfied with the truth of this translation when he can ask, intelligibly for the native: 'Is *this* the *same* rabbit as that?' or 'Do we have here *one Gawagai* or *two*?' pointing to different spatial parts or temporal stages of the rabbit. But intelligible formulation of this question presupposes that we have already established hypothetical translations of such expressions as *'is it the same as'*, *'one'*, *'many'*. It presupposes translation of those elements of the natural language that form *the native's conceptual system of reference*. That also constitutes part of what the linguist does when he forms alternative hypotheses of translation, equally compatible with the native's observed speech disposition, but incompatible with one another.

Let us assume that we have found a substitute for 'is it the same as' among the native's expressions. We want to check this by asking him: 'Is *this* rabbit the same as *that*?', and he assents each time we point to the *same (from our point of view)* rabbit and disagrees in the opposite case. That can be taken as evidence of the correctness of the translation of the expression *'is it the same as'* and 'Gawagai' taken together. But the native's answers are *equally compatible with other hypotheses* of translation. For example, we could change the translation of the expression 'rabbit' into the expression 'undetached part of a rabbit'. Correspondingly we change the translation of *'is it the same as'* into *'refers to'* or *'belongs to'*. On the whole, the new translation is as close to the native's behaviour as the old one. According to Quine, that means that the translation of such elements of natural language as expressions of identity, the endings of the plural, the symbol of singularity (like the indefinite article in English) is an interconnected and underdetermined empirical reality. Translation must therefore be made dependent on its analytical hypotheses. Similarly there is no sense in saying whether a line runs left or right, with-

out a definite frame of reference (in itself the line does not indicate what frame of reference it can be regarded in), so the question which hypothesis of translation is *the only correct one* also has no sense.

The translation of a sentence is thus *indeterminate* iff there are at least two non-equivalent sentences S_1 and S_2 in the language of the translation such that the speaker's disposition to a verbal reaction is not sufficient for choosing between S_1 and S_2 when translating S. In that light the translation of one sentence into another is relative to the selected hypothesis of translation that figures as some 'manual for translation'. The choice of the latter is not determined by reality, although one expression can be regarded *in the context of the chosen scheme of translation* as a translation of another expression.

The idea of the indeterminacy of translation does not mean that translation is impossible. Not only the biological factors of the existence of speakers of natural language, but also social factors, encourage the establishing of a *pragmatically satisfactory* relation of translation, theoretically not the sole one, but one of a set of alternatives, like the isomorphism that occurs between different systems and guarantees communication among the speakers of the language (allowing both for the genesis and for the whole complexity of the structural links established between observation sentences and standing sentences in a certain 'conceptual system'). The fact of the indeterminacy of translation therefore cannot cause a crisis in linguistics like that caused at one time in the theory of sets by the discovery of antinomies.[52]

The fact that the meaning of a linguistic expression cannot, however, be treated outside a certain analytical hypothesis (just as the truth of the propositions of a scientific theory outside the theory itself), or outside a certain 'conceptual system' that is the system of interconnected sentences it is part of, and the fact that the 'conceptual system' 'comes into contact' with physical reality only at its 'edges', shows the groundlessness of postulating absolute, semantic entities like meanings, propositions, and absolute semantic differences, like analytic, syntactic etc.[53] This leads to the

adoption of a *relativistic pluralist* understanding of 'conceptual scheme'.

Shifting of the accent from analysis of the 'semantics of language' as a certain set of semantically interpreted syntactic objects to analysis of natural language as 'a conceptual system', the relativisation of meaning and the concepts derived from it, the attempt to bring out the genetic and social aspects of the language's construction as a construct of speakers' definite *knowledge* of the world, and examination of the problematic of meaning as inseparable from the problematic of *cognition*—all point, from my standpoint, to the *methodological significance* of this conception. But one must note that it contains substantial traces (from the same methodological standpoint) of the influence of the neopositivist conception of language as a 'picture of the world' (for Quine—as a set of such 'pictures').

In this conception it is a matter of interconnected *sentences* (or statements in the logical understanding) as the content of a conceptual system whose origin is treated as *causally dependent* on the natural language. From that standpoint mastery of logic goes hand in hand with mastery of language. The latter is treated as mastery of a certain system of representations by which a speaker of the language expresses his thought; it is also posited as possible because of the same system of representations—in essence they are *undifferentiable*. That applies equally to mastery of ordinary language and of the language of science (an idea expressed allegorically is then regarded as a function of what would be expressed with direct use of the linguistic expression).

From the standpoint under consideration linguistic communication only presupposes a system of coding and decoding in exceptional cases; the linguistic expressions used to communicate an idea are taken as *identical* with or *close* to what constitutes the *idea itself*. With that approach a new natural language is regarded as a code only in the initial stage of mastering it; full mastery means mastery of the procedures of thinking directly in that language. The latter, and the logic assimilated with it, is taken as a single means of thinking and communication.

The idea of a conceptual system as a system of interconnected sentences, and the causal dependence of its origin on the acquiring of the natural language, inevitably lead to a vicious circle when explaining the function of language in cognition, and to a methodologically and theoretically unsound absolutising of that very function in the construction of conceptual systems. This can only be explained as a consequence of the general methodological orientation inherited from the neopositivist doctrine having to do exclusively with *observed* phenomena—of language and reality. With that is linked another factor, which largely limits the constructiveness of this conception and which consists in not recognising the role of the concepts of the semantics of *possible worlds* in explication of the meaning of linguistic expressions.

6. Meaning as Part of the Conceptual System

I shall undertake to analyse semantic relations as they are realised in a definite conceptual system that reflects an individual's cognitive experience, and to examine in that connection the place and functions of language in the construction of such systems, basing myself on the hypothesis of meaning as a component of the *conceptual system* but attributing an essentially different sense to that concept than in the conception examined above.[54] In order to facilitate understanding of this hypothesis, I shall formulate it, to begin with, in its most general, condensed features, and will then pass to a more detailed exposition of it.

Even before becoming acquainted with language a human is, to some extent, acquainted with the world and cognises it, and, through certain channels of sense perception of the world has some (true or false) information about it, differentiates and identifies objects of his cognition. Each individual assimilates any new information through what he already has. The system of information about the world thus formed is a conceptual system constructed by him as a system of his definite notions about the world. The construction of this system before the acquiring of language is the *non-verbal* stage of its formation. At this

stage a person is acquainted with objects accessible to direct perception.

For this system, the acquaintance with language, as with any other object of cognition, presupposes differentiation and identification of its expressions. It is constructing certain information about it as a definite object, which is only possible through the information already contained in the conceptual system. That information thus serves both for perceiving definite objects (singling them out in the world) and for singling out language itself as a special object; relating them one to another by the conceptual system is a coding of certain fragments, 'bits' of the conceptual system, by linguistic means. Further assimilation of information about the language means mastery of its grammar as a means of operating with its expressions. And in view of linguistic expressions being attached as a code to certain fragments of the conceptual system, that means manipulating the information contained in it. This in turn leads to the construction in it of information not constructable without language and makes it possible to go beyond direct experience. Any new information becomes part of the conceptual system. Its consistency is observed in the forming of the conceptual system.

Now let me set this out in more detail.

According to the hypothesis the process of human cognition, which consists in development of man's ability to orientate himself in the world (in a very broad understanding of the term), is a process of forming meanings, or *concepts*,[55] about objects of cognition, a process of constructing information about them. This *information about the actual or possible state of affairs in the world* (i.e. what the individual believes, knows, supposes, imagines about objects of the world) is just what I shall call *'meanings'*, or *'concepts'*. More strictly one can regard a concept as an *intensional* function determining a set of objects; the values of this function can obviously be both objects of the real world and objects of possible worlds.

To acquire a certain meaning (concept) is to build a certain structure consisting of available components as *interpreters* or *analysers* of the concept concerned, 'introduced'

(from the external standpoint, i.e. from the point of view of an observer outside the system) into a system of concepts so constructed, or a *conceptual system*. The forming of such a system obviously presupposes primary concepts as necessary conditions of the building of a conceptual system.

From the external standpoint there is always a *relation of incompatibility*, expressed by different degrees of *negation* or *denial* (in the continuous interval from 0 to 1 being examined) between the concept being *introduced* into the system (from the internal angle—*generated* by the system) and those already contained in it. In view of the importance of the notion *of incompatibility,* I shall dwell on it in more detail.

First of all one may stipulate three types of incompatibility: (1) *formal,* (2) *material,* (3) *'global'*. I shall treat the first as a special case of material incompatibility, and the second as a special case of 'global' incompatibility. As a verbal, very approximate illustration of '$\sim p$' (i.e. 'not-p') when 'p', for example, is the sentence 'Jonas is a student' the sentence 'Jonas is not a student' would correspond to the first type of incompatibility (by analogy: 'Jonas is rational'—'Jonas is not rational' or 'Jonas is irrational'); not only 'Jonas is not a student', 'Jonas is a non-student', but also, possibly, 'Jonas is a professor'. 'Vilnius is the capital of France'. '$2 \times 2 = 5$' and any false sentence would correspond to the second type of incompatibility. Any sentence that is not 'p'—both those above and also, possibly, such as 'Vilnius is on the River Neris', 'Pegasus flies', 'The butter-fat content of milk is falling', and the like, would correspond to the third type of '$\sim p$'. From this point of view the negation of 'p' presented in the general, standard form '$\sim p$' or 'it is not true that p' is ambiguous.

When, for instance, I say 'It is not true that Jonas is a student', I can relate the negation to each of the components of the sentence 'Jonas is a student'. In relating the negation to the component 'student' I may have in mind that Jonas is a worker, a schoolboy, a professor, etc. If I understand the negation as relating to the component 'is' I may have in mind that Jonas was a student, or will be a student, etc. If I understand the negation as relating to

the proper name 'Jonas', I may have in mind that it is not Jonas, but someone else, for example Petras, who is a student. And if I consider that the negation relates to the whole sentence, I may have in mind not only the truth of the sentence but also negation of the truth-value that it represents. Finally, by negating sentence '*p*' I may have in mind some other sentence in accordance with the context and my intentions of employing it.

The relation of incompatibility examined here, I call '*relevant incompatibility*', meaning thereby *how far the concepts of the conceptual system are close in meaning*, as the decisive factor of possible use of certain concepts in order to build or define other concepts in the system concerned, and as a possibility of passing from some concepts of the system to others.

A person's cognitive (orientating) activity is inevitably accompanied with a need to single out objects through their distinguishing from other objects. Identifying and differentiating objects is finding of their boundaries, or definitions. By fixing boundaries of an object we define it. That task of cognition can be considered solved when the place of the object in the system of other objects is indicated. Carrying out of the operations of distinguishing objects in turn presupposes the existence or presence of certain concepts.

One object differs from another, generally speaking, if it is impossible to relate to the first what applies to the second, i.e. if the concept of the second is a *negation* of the first. Frege once said: 'There can be no negation without something negated, this is a thought'.[56]

> Negation thus attaches to the content, no matter whether this occurs in the shape of a judgment or not. I therefore hold it more suitable to regard negation as a mark of a possible content of judgment.[57]

In the theory of semantic information proposed by Bar-Hillel[58] the content of a sentence (the measure of its information) is defined as the number of possible states of the universe, or descriptions (in Carnap's terminology), or possible states of affairs (according to Wittgenstein[59]) negated by the sentence. Similarly, Stalnaker suggests that 'the

content of what one says or believes should be understood in terms of the possibilities that are excluded'.[60]

I, too, regard negation as an operation by which the relation of '*relevant incompatibility*' is realised. Let us examine the following schematic logical model of a cognitive situation.

Assume a world consisting of two objects (in the broadest possible understanding of the word) p and q as objects of cognition. Assume, further that we know the meaning, or concept, of p (i.e. we have definite information about p); we have to construct (determine) the meaning, or concept, of q. We will obviously do that starting from our knowledge of p, i.e. from the concept p, because—as agreed—we do not dispose of any other information.

If there is something in concept p that will serve as a means to recognise, establish, or construct concept q, then the fact of the identity of p relative to q will signify that p is fully involved in the construction of q, i.e. fully determines q[61]. In that case we will say that the relation of relevant incompatibility between the concepts p and q is 0 (i.e. $p = q$ if $N_{p/q} = 0$, where $N_{p/q}$ is the relation of relevant incompatibility between the concepts p and q). If the concept p contains something that is a means of constructing q, and if p is not identical with q, then either p will not be fully involved in the contruction of q, or p will not be sufficient for the construction of q. In that case $N_{p/q} \neq 0$ (i.e. $p = \sim q$ follows from $p \neq q$, if $N_{p/q} \neq 0$). As a result one can establish the following pattern: the smaller the 'share' of p involved in the construction of q, the more $p = \sim q$. In other owrds, the less the 'share' of p involved in the construction of q, the greater the value of $N_{p/q}$.

If we designate the 'share' of p involved in the construction of q *by* p^*, then $p^* = 1 - N_{p/q}$, which is the simplest form that expresses this pattern. Consequently, when N embraces the continuous interval between 0 and 1 (in numerical interpretation), i.e. $0 \leqslant N \leqslant 1$, $p = q$, if $N_{p/q} = 0$; $p = \sim q$, if $N_{p/q} \neq 0$, and $p = \sim q_{max}$, if $N_{p/q} = 1$, $p = \sim q_{min}$, if $N_{p/q} \to 0$, where '$\to$' is the sign of approximation. If, besides p, some concept r is involved in the construction (in-

terpretation) of q, i.e. if p and r form a structure (p, r) that interprets q, then $N_{p/q} = 1 - N_{p/q}$, and so on. If N can be interpreted in terms of the distance D between the concepts of the system, then one can determine, in particular: $D_{(p/q)} < D_{(r/q)}$, if $N_{p/q} < N_{r/q}$, where $D_{(x, y)}$ is the meaning distance between x and y. In other words, the 'fraction' of p involved in the construction of q is greater than the 'fraction' of r involved in the construction of q. In accordance with what has been said, a *fundamental principle of interpretation* can be formulated as follows: a concept c is constructed (interpreted) in an individual system CS_{Ind}, iff $Ncs_{Ind/c}$ is less than 1. This principle can be treated formally as the *function of interpretation Int*, whose domain of arguments is formed by the concepts (their structures) contained in a definite conceptual system, and whose range of values is the concepts constructed from them (their structures). The individual conceptual system CS_{Ind} can then be defined as a structure (C_{Ind}, Int, N), in which C_{Ind} is the set of concepts to which the interpratation function *Int* is assigned.

Since a person's cognitive activity does not stop at singling out one, two, or three objects in the world, but ranges in 'depth' and in 'breadth', it is reasonable to treat it as activity attended by a progressing distinguishing of objects, between the concepts of which a relation of incompatibility is established that presupposes an operation of negation. Establishing the latter indicates the existence of a *system*, the complexity of which from the angle of this operation depends on the universe of discourse that the negating extends to in each separate case.

(1) The fundamental principle of interpretation calls for *consistency* (continuity) in the introduction of concepts; those contained in the system are *basic* for the introduction of new ones.

(2) According to this principle, a conceptual system is being *continually* constructed. Meaning is thus regarded as a concept consisting of other concepts as its *semantic analysers* and continuously linked (though to a different degree of incompatibility) with the other concepts of the system. The degree of incompatibility between the system's

concepts is shown by the possibility of defining some concepts by others, i.e. by the possibility of passing from some concepts to others, and to the construction of *new* concepts in the given conceptual system (*omnis determination est negatio,* as Spinoza said[62]).

It follows from this that the relations between the concepts involved in the construction of a definite concept in a given conceptual system are characterised by a different degree of incompatibilty. In other words, these concepts function as constituents of the conceptual structure, which is itself a concept constructed in this system (in the scheme above, for example, the role of these concepts is performed by the concepts p and r which form a structure (p,r) as the concept q constructed in the system). Note, finally, that I do not treat the process of assimilating meanings as concepts as being necessarily conscious in the individual in the sense of explicit knowledge of the principles underlying this process.[63]

From the standpoint of a conceptual system the objects interpreted by the same structure of semantic analysers (significant for comprehending one aspect or another of them) are treated as identical (in the relevant aspect). The degree of similarity (or, correspondingly, difference) of the objects of cognition is understood as the existence of a certain set of the same analysers involved in construction of the corresponding concept of this object.

The procedures of generalisation and classification of objects that we are obviously concerned with here are usually taken as *real attributes of thinking.* The fundamental principle of interpretation consequently serves, on the one hand, to explain the very *possibility* of cognising, or knowing, the objects, the possibility of conceptualising them in a certain system of concepts, on the other hand, it not only does not rule out but necessarily calls for relating of these considerations to the processes of the constructing (generating) of a conceptual system already in the *pre-language* (pre-verbal) stage of the individual's existence. There are both empirical and logical grounds for considering that the system so generated is *not verbal.*

There are as many modes of communication with the

world and knowing it, in general, as there are channels by which information about it can be conveyed (concretely: the eyes, which pass certain information to the brain that make it possible to distinguish an open door from a closed one, so that in the first case one walks through the doorway and in the second stops at the door). In the understanding mentioned above the individual obviously begins to know the world to some extent by building a certain picture of it (possibly a very specific one from the ontological angle), i.e. *identifies* and correspondingly *differentiates* certain objects already before the *introduction* (assimilation) of the natural language. The 'sensory' origin of the concepts formed through this process of cognition, moreover, in no way lessens their intellectual or conceptual status and, by virtue of the procedures of generalisation inevitable in these processes, their abstractness. The 'sensuousness' in this case refers only to the *sphere* of cognition and its *limited character.*

What objects the individual distinguishes in the world around him is immaterial, i.e. how the world appears to him and how he perceives it; whether he is Quine's native who possibly sees a rabbit running across a field as something dotted here and there over the whole space,[04] or is like the infant one to four-months old for which, according to Jean Piaget, the objects of the external world are inseparable from his actions with them. The strength and effectiveness of these wordless information processes are sufficient, according to Piaget, to demonstrate that the roots of such logical structures as classification and seriation (in his terminology) are *independent of language*[05].

The principle of the interpretation of concepts, according to which the construction of a conceptual scheme takes place continuously, applies to all stages of cognition and of human activity in general. Characteristically, in such a unique case as the cognitive activity of blind deafmutes,

> when a quite unknown object is put into the hand of a blind deafmute child, he does not feel it all over. Objects with which he has already satisfied his wants, when changed in form and size invariably evoke orienting-investigative activity... The newer the stimulator the few-

er chances there are that it will evoke orienting-investigative activity in a blind deafmute child.[66]

The presupposition about the pre-verbal stage of the forming of a conceptual system is also dictated by *logical* considerations as a *sine qua non* of a *meaningful* introduction, i.e. of *understanding* of verbal symbolism as a code in the initial stage of its assimilation. Ignoring of this presupposition rules out rational explanation of the possibility of an individual's mastering of language and leads not only to an empirically and theoretically unsubstantiated but also methodologically unsound ascribing to its forms of a function of generating thought from the very giveness of the language, to search for a correspondence between the structures of language and reality, and in the extreme case (as in the neopositivist doctrine of natural language) to attempts to deduce structures of reality from the structures of language.

Thus, in contrast to the approach of Quine, who considers that the logic of thinking is necessarily mastered in the very course of mastering language, I suggest that logic is necessarily mastered *during the forming of the conceptual system itself*. It takes place in the course of the *consecutive* building of concepts (which is governed, according to the approach expounded here, by the fundamental principle of interpretation). Sequence (determined by the rules of the transition from some expressions to others, deduction of the latter from the former according to the information contained in them and essential for making this transition) constitutes logicality also of verbal argumentation as it is formalised in logic.[67]

In acquiring a natural language the verbal symbolics serve as a *code* for the concepts (and structures built from them) that belong to the pre-verbal stage of cognition and reflect the individual's initial, elementary cognitive experience. The form of the verbal symbolics correlated with these concepts may, moreover, vary from a word to a sentence, and even to a set of sentences. What is expressed by one word may be correlated with a certain structure of concepts, and vice versa. In general there is no sense in looking for isomorphism between the verbal form and the

concepts in view of the continuous character of the building of the conceptual system and the discrete character of language. One can only speak of a hierarchy of concepts in the sense of the building and *genesis* of concepts in a given conceptual system.

It follows from what I have said above that, while I agree with Quine's holistic treatment of the conceptual system, I explain the continuousness of its construction by the postulated necessity of its origin *before language is acquired* and look upon its further construction and extension as a continuous building of new meaning structures (which is the essential role of language) on the basis of the concepts contained in the system.

As with any other object of cognition as an object subject to interpretation in a certain conceptual system, the acquiring of natural language as a code for the system's concepts at the same time means the building of a certain concept of the language *itself* (as a certain physical and linguistic entity) that contains knowledge of its physical and grammatical characteristics. The importance of mastering this concept is not only that the individual thereby masters (assimilates) certain procedures, principles and rules of the *constructing* of linguistic expressions—as information about the phonological and grammatical systems of the natural language (characterised, for example, by specific phonological parameters, systems of gender, number, case, tenses, aspects, etc.). This is to say that the linguistic expressions in a conceptual system are interpreted on many levels: on the level of interpretation of concepts fixed by the expressions as their verbal code, and on the level of interpretation of the *code itself*. The significance, semantically, of interpretation of the code as such, and equally the effect of the interaction of the interpretations of various levels is often obvious (for example, in poetry, in the case of citations and quotations, imitations, and such like).

The interpretation of the personal pronoun, or indexical 'I', for instance, may be understood as a construction of several concepts on the level of *phonology, grammar*, and *semantics*. In the last case one must differentiate the *lan-*

guage-fixed, or *conventional*, aspect, which consists, roughly speaking, in the form of a concept that the speaker is referring to himself (the 'first person') by the expression 'I', from the *pragmatic* aspect which relates to the possibility of establishing a real or possible object in a certain context as the referent of this expression. This object may be at one and the same time the referent of a set of other expressions, including, for example, the indexical 'he' (from the angle of other, third speakers of the language), a proper name (for example, 'Jonas Kubilius'), or a definite description (for example, 'The Rector of Vilnius University') fixing definite information as concepts related to the object concerned as referent of all these expressions and the value of the corresponding concept-functions. Ability to employ the natural language meaningfully is ability to correlate these multilevel concepts with one another (beginning from the phonological and ending with the pragmatic as an aspect of the semantic); on the theoretical plane this correlation can be regarded as a function from some concepts to others.

This survey of the correlation of verbal form and the content fixed in it helps explain, as well, the status that semantic entities (*meanings, senses, propositions*) have in the various semantic theories examined above. Sentences that contain indexicals, are particularly helpful here. Take the verbal form 'I am ill', for example. Perceived as a certain sequence of physical signals (sounds or written symbols), it represents what is called a 'sentence-sign' as a concrete, one of many exemplifications (made by one and the same or different speakers of the language) of the corresponding sentence-type. By abstracting the latter (as a certain concept containing information about the perceived content of these physical signals) we recognise its concrete realisations.

We can thus already speak at this level of *semantic* analysis of sentence-signs, though in a non-standard understanding of this term. In the standard, generally accepted understanding of it, one obviously has in mind the ascribing of certain *semantic entities* to the perceived sentence-signs. Then we have to differentiate at least two types of

these essences: what I have called above '*fixed meanings*' (analogous to the '*meanings*' of Montague and Cresswell, Kaplan's 'character', Katz's '*meaning*' and '*proposition*'), and what '*proposition*' and '*sense*' are with Montague and Cresswell, and '*content*' with Kaplan. From that standpoint sentences may have an identical meaning but express various propositions—as in the case of 'I am ill' uttered by two speakers of the language, i.e. when two sentence-signs are employed that represent the same sentence-type, or in the case of я болен and 'I am ill' uttered by speakers of two different languages. Conversely, propositions expressed by two sentences may be identical but the meaning of the corresponding sentences be different (as when I say 'I am ill' and my wife says 'My husband is ill' or 'He is ill' (having me in mind). There is also a possibility connected with that approach of regarding propositions as entities *sui generis* (analogous numbers, sets, classes, etc.), as what can be examined abstracted from any sentences employed to express them, and from any language. These entities are regarded as *objects* of different propositional attitudes (see Ch. V) and taken as bearers of truth and falsehood.

When what I have called the '*pragmatic aspect*' is not allowed for, we are dealing with semantics exlusively on the level of the meanings of sentences, and when these are regarded independently of conceptual systems, one has to do with their absolutised version described in the interpretative conception of semantics. From the angle of this theory the sentences 'I am ill' and 'I am not ill' have to be (and are) regarded as contradicting one another even when they are uttered by *different* speakers of the language, and each of them is *true*. But when the 'pragmatic aspect' is taken into consideration (but only in the extent that the aspect of the reference of the linguistic expressions is allowed for), and the sentences themselves are treated without their links with certain conceptual systems, we are also dealing with an abstract 'semantics of language', although one constructed with regard to the links of language and the world. Finally, when intensional objects are not recognised in general as theoretically acceptable (as

in Quine's conception), i.e. not in connection with conceptual systems, and not as ingredients of them, then semantic analysis is locked in *within the language itself* as directly related (without any intermediaries) to reality and the behaviour of its speakers. Standing, or contextually free sentences are then considered as bearers of truth-values; a procedure is then stipulated for translating context-dependent sentences like 'I am ill' into standing sentences, which presupposes in particular the substitution of indexicals for proper names and definite descriptions.

With that approach, however, not only is the intuition of the different meanings ascribed (in the understanding mentioned above) to one and the same sentence unexplained, but also the *very possibility of initial mastery of the natural language*—and that is particularly important. This possibility, from my point of view, presupposes as a *sine qua non* of the correlation of language and reality both that the subject, when perceiving reality already articulates it at a certain level, i.e. distinguishes certain objects in it, and that among the objects singled out and differentiated from one another and from other objects of reality perceived by the subject are the *expressions of the natural language themselves* as physical signals differentiated and to a certain extent identified by the subject.

We consequently exhibit an ability to differentiate objects of the world, not through acquiring a natural language (as Wittgenstein proposed and as his modern followers hold) and not because language with its system of classification provide a possibility of going out to reality and so is an *apriori* condition of understanding it. We begin to differentiate red objects from not-red ones, for instance, not because we have mastered the criteria of proper use of the predicate 'red'. Acquiring of a natural language presupposes differentiation both of the *linguistic expressions themselves* and of the *situations* in which they are used, and finally their *correlation*; both these are done by means of concepts of a certain conceptual system. An essential aspect of the mastery or introduction of verbal symbolics as a code of concepts of individual conceptual systems, consists, moreover, in a *social,* conventional orientation of these

systems in the sense of a striving to reduce the *semantics* contained in them, and verbalism employed for coding it, to the norms accepted in a certain linguistic society.

At this stage language may be and is employed (through certain procedures of reinforcement and fixation of *uses* of linguistic expressions correct from the angle of social usage, and conversely correcting and rejecting incorrect use) for a definite transformation of the initial pre-verbal, or already to some extent verbalised, 'picture of the world' (in the sense of the use to some extent of a private idiosyncratic verbalism), and for its socialisation.

It is only by allowing for the possibility of passing by means of natural language from individual, subjective articulation of the world to an intersubjective and in *that* sense objective (i.e. to intersubjectively drawn distinctions) by means of a generally accepted verbal code that one can constructively interpret mastery of the correct use of linguistic expressions as assimilation of the corresponding distinctions (classifications) in the world as the premise of social communication of the bearers of different conceptual systems. An illusion of the ubiquity of language is created already because we have nothing else than language as a means of explaining our knowledge and understanding of the world; we cannot avoid employing language to explain language itself. Hence, too, the illusion of the tautological nature of linguistic explanations (see Ch. III).

Coding the concepts of a system by verbal expressions is not just a precondition of verbal social communication. Natural language symbolically fixing certain concepts of a conceptual system, provides a chance to *manipulate with verbal symbols* (through mastery of a concept of the grammatical structure of the language, and to the extent that such a concept has been constructed), and thereby to manipulate with the system's *concepts*. This means to build *new conceptual structures* in it (in accordance with the fundamental principle of interpretation) that are continuously but indirectly correlated (through other concepts and structures of concepts) with concepts that reflect the individual's actual cognitive experience. In this understanding the former are obviously not reducible to the latter, al-

though they are inextricably bound up with them. The content of the conceptual system may not only be more or less 'rich' but it may also be more or less close to the cognised reality. However, it is never completely determined by it; for it is a matter of the *logical* (i.e. system-determined) possibility of constructing or generating concepts.

Conceptual structures constructed by means of language are related to the individual's *possible* rather than to his actual experience. They may represent information that it is impossible to introduce into the conceptual system without language, i.e. to build into it without manipulating with language and the concepts fixed by it, and consequently to draw corresponding additional distinctions in the world. (Properly speaking it is right here that a danger of absolutising and hypostasising language lies.) It may be information about objects which are in principle observable though inaccessible to observation, or information about objects which, in principle or not, are unobservable, or hypothetical. In that sense concepts coded by the verbal symbols 'water', 'red', 'run', etc., differ from concepts coded by the symbols 'entropy', 'centaur', 'democracy', $\sqrt{-1}$, and so on.

The cognitive value of symbolism, and of language in general, consists in this extension of the limits of knowledge, and in the possibility of going beyond the limits of actual experience. That applies not only to natural languages but also, in general, to any symbolics employed as a means of coding and manipulating with the concepts of a conceptual system. One can point to what is called the phenomenon of '*self-awareness*' as a significant moment of this extension of cognitive limits. From the standpoint being considered it is a partial case of the mutual interpretation of concepts, when the conceptual system is interpreted *in corpore* (is reflected) in *its own concepts*, which is expressed on the linguistic plane by the assimilation (construction) of a corresponding concept as the meaning of the indexical 'I'.

Because of the absence of a one-to-one correspondence between the continuum of the conceptual system and the set of verbal expressions there is no possibility of speaking

of the *absolute* expressive possibilities of a natural language. The concept 'expression' here requires an important qualification: a natural language does not by itself in general express anything unless a definite interpretation of it is presupposed. From the standpoint of the approach I am defending one may speak about the expression of some concept through language understanding by this the fixation (through the coding function of language) or construction (through the *manipulative* function of language) of a definite concept in another (or, trivially, the same) conceptual system. Verbal expressions themselves should rather be treated (without ignoring their fundamentally important function, viz., of a symbolic fixing of conceptual structures, of manipulation with them, and the generation of new conceptual structures) as marks (points) in the continuous space of meaning that also have *a social function* besides their *social nature*, viz., to serve as a means of communication.

The functions of coding and manipulating with concepts that I have distinguished explain the possibility of 'transmitting' information through a text when concepts that belong to certain conceptual systems are coded by the text at one end of the 'transmission line' (in historical perspective—are 'preserved' by the text) and when that very text is decoded at the other end in some other conceptual systems.

Different concepts of one and the same conceptual system may relate to one and the same verbal expression, which produces the ambiguity of linguistic expressions. We say that a human and a horse runs, that a clock runs, thoughts run, brooks run, and so on. We say 'sharp' about a drop, and 'sharp' about a reply, 'sharp' about a knife, and 'sharp' about a critique. The same applies to the use of such philosophically charged terms as 'correct' or 'exist': for instance, we say 'correct' about mathematical and logical formulae, and 'correct' about weather forecasts; numbers, classes, etc., and material objects 'exist'. As noted above, the form of the verbal symbols correlated with the concepts of a conceptual system may vary from a word to a sentence, or whole texts. Because each conceptual sytem,

as a system of intensional functions, presupposes a certain ontology on the one hand as a set of objects given by these functions, and has an individual history of construction on the other hand (which also applies to the status of its concepts), disparities are possible between the individual conceptual systems as containing different 'pictures' of the world (see Ch.V, § 6). These disparities reflect different experience (in its most varied aspects and levels—ordinary, scientific, physical, social, ethical, aesthetic, etc.), which, together with other factors (social, cultural, physical, and other contexts) determine the different orientational needs of speakers of the language.

Linguistic expressions are correlated in any case with a certain concept (or structure of concepts) inseparably linked with a certain conceptual system, i.e. with its definite concepts. Understanding of a linguistic expression is therefore regarded here as its *interpretation in a definite conceptual system*, and not in terms of a definite set of semantic objects correlated with linguistic expressions and forming a 'semantics of language' as suggested in the semantic conceptions referred to above (except Quine's).

At the same time, because of the manipulative function of natural language, it is possible to orientate individual conceptual systems to specific, significant social, cultural, aesthetic, and other values, accepted in a certain society, and to a *socially significant* conventional 'picture of the world' that is also a necessary condition of the social communication of the speakers of the language. That gives us the right to speak of the possibility of a specific orientation of individual conceptual systems manifested when a specific 'picture of the world' is formed in conformity with the system of stereotypes of behavior and thinking accepted in a certain society.

The approach set out above helps us understand why one natural language often contains linguistic forms to convey concepts for which there are no corresponding means of expression in another language. From the standpoint I have adopted, the opportunities for 'expression' of concepts, and for constructing new ones, are increased when one learns a new language (allowing for its manipulative

and generative functions). This constitutes (in my opinion) a decisively positive moment in the hypothesis of linguistic relativity.

The unconstructive aspect of this hypothesis, which affirms that a natural language determines its speakers' world outlook, and that great differences between natural languages ultimately signify differences in thinking and in understanding the world is linked with an absolutising of language's function in the building of a conceptual picture of the world. The essential role of natural language in the building of conceptual systems (as follows from what has been said) does not allow us to speak of a semantic system of a language as some semantic entity. A natural language is not, in itself, a conceptual system; figuratively speaking, it is 'woven into' such a system and serves for the further construction and symbolic representation of its content that embodies both the everyday notions (including preverbal ones) of speakers of the language about the real or some other possible world, and scientific, quasiscientific, and other possible notions. Consequently what is coded by a linguistic expression in communication is not some meaning of the 'semantics of language' *common* to the communicants, or the *same* meaning, but a concept inseparable from a certain conceptual system generated and, consequently, *defined by it.*

Ontologically this is a requirement to allow for certain universes of objects projected by the corresponding conceptual systems, and consequently to relativise with respect to them semantic properties and relations of linguistic expressions. One must also stress that it is not a matter of relativising the definitions of these properties and relations but one of how they are realised in a certain conceptual system.

I take these considerations as my starting point for a critical analysis both of the problems of the logico-philosophical investigation of natural language and of the adequacy of the approaches proposed in various theories to solve these problems. But before I undertake this discussion let me sum up what has been said in this chapter.

The central, and methodologically the most important

aspect, of analysis of the problem of meaning is, of course, to examine the relation of *thinking* and *language* as part of a more general, fundamental relation of *thought, language and reality*. The most important element for defining the status of meaning in one or another semantic theory is undoubtedly the question of whether thinking can be reduced to language, and mental (logical) structures to linguistic (grammatical) ones, or whether, on the contrary, they should be regarded as independent of one another, or rather whether one must look for a dialectical, organic link between them, endeavouring to bring out its essence and the mechanism that makes it possible to determine the place and function of language in the processes of mental assimilation of reality.

It is precisely reduction of mental structures to linguistic ones, or an identifying of them, that is essential and common to the semantic conceptions of language presented above. In spite of the acceptance in them of a theoretically important and promising differentiation of the surface, accessible to observation, level of the analysis of language and a deep, abstract level not accessible to observation, in spite of the treatment of the latter as *logical*, basic, and semantic, these theories are concerned with *linguistic meaning structures*. Making these structures absolutes, as a consequence of treating language divorced from the processes of thinking of real speakers, inevitably leads to postulating and hypostatising a 'semantics of language', however it is presented theoretically.

The 'semantics of language' comes out in its clearest, 'purest' form in the 'interpretative' theory of natural language, in which the problem of the reference of linguistic structures to the world, to objective reality (including the knowledge a speaker of the language has of it) is dropped altogether. There is also no such correlation of speakers' knowledge of the world with linguistic structures in the 'reference theories' advanced to counter the 'interpretative theory', although they do contain an attempt to link language with objects of the world. In them, as in the 'interpretative' analysis, the postulated 'semantics of language' is something common to all speakers of the language, al-

though this 'common' is expressed in this case in the postulating of some absolute totality of objects of the world as reflections of the 'semantics of language' in the world, and not dependent on the notions of the world of the concrete speakers of the language. Finally, in the theory formulated by Quine, in contrast to those mentioned above, a thesis is put forward of the need to examine the problem of meaning in connection with that of *cognition*.

In that theory, however, linguistic structures are treated directly as logical ones, i.e. it is not even admitted that apart from language and the world there are certain intermediate mental structures between them; only directly perceived entities, accessible to observation, are deemed objects worthy of analysis, while all others are considered metaphysical fictions. Not for nothing is the concept of 'conceptual system' identified in it with the concept of a system of logically interconnected sentences of the language. The attempt, characteristic of Quine's theory, to include speakers' behaviour in analysis of the problem of meaning as one accessible to observation is nothing else than a behaviourist 'justification' of a methodologically inconsistent, neopositivist doctrine of language, traces of which can be clearly felt in Quine's conception.

What I have said about the methodological aspect of the above-mentioned semantic conceptions must not be regarded as a denial of the importance of the separate constructive ideas and theoretical elaborations contained in them (about which I have already spoken) and to which I shall return in the subsequent exposition. These elaborations which are based on the advances of modern logic and linguistics, are an integral part of the modern science of language.

My approach, however, does not propose either an identification of thought and language, or a rupture of them, but rather a search for links such as would enable one to determine the mechanism of this connection, and in particular to bring out *how it is possible* to assimilate and understand language, and what role it plays in the constructing of a conceptual picture of objective reality. Unless these important elements are brought out a critique of the

semantic conceptions analysed in my book that stopped simply at stating the dialectics of the relation of mental and linguistic structures would be incomplete. The approach I have adopted, which consists in consistent disclosure of the mastering of linguistic structures, enables me to bring out the significance of those factors to which sufficient attention (if at all) has not hitherto been paid. These hidden but, as I shall show, essential factors, which to a considerable extent determine what is new in my research, include a proposition about the non-linguistic character of the information that a person possesses in the initial stage of knowing the world and that forms a definite system of his views of the world, or conceptual system. Unless one posits such a system of information the existence of which is confirmed by logical and empirical arguments, one loses the very possibility of a rational explanation of the understanding of language in the initial stage of acquiring it, and breaks the ground for various kinds of mystical interpretations of this process. Adoption of an assumption about the existence of a non-verbal system of information make it possible to pass consistently to examination of language's role in its subsequent construction. The meaning of linguistic expressions is thus 'woven' into certain conceptual systems that reflect their bearers' cognitive experience. An essential result of this approach is disclosure of a need to refer to the factor of conceptual systems when analysing the meaning of linguistic expressions. Such reference, as we shall see later, is extremely important for bringing out the link of language and the world, for defining the criteria of the meaningfulness of linguistic expressions, for discovering the relation of belief and knowledge, and for passing from the one to the other when building a picture of the world. Allowance for the factor of the conceptual system as a *constantly present context of the use and understanding of linguistic expressions* is also essential for dealing with the host of practical tasks of modelling mental processes—and hence wherever it is necessary to allow for a person's 'stock of knowledge'.

[1] Noam Chomsky. *Cartesian Linguistics*; Jerrold J. Katz. *Semantic Theory*; idem. *The Underlying Reality of Language and Its Philosophical Import*; idem., *The Theory of Semantic Representation.*

[2] Alfred Tarski. *Logic, Semantics, Metamathematics*, pp. 418-419.

[3] R. J. Pavilionis. *Yazyk i logika.*

[4] Jerrold J. Katz. *Semantic Theory*, p. 76. On the methodological consequences of this delimitation, see Ch. III, 3 and Ch. V, 2.

[5] *Ibid.*, p. 38.

[6] Peter Geach and Max Black (Eds.). *Translations from the Philosophical Writings of Gottlob Frege.* p. 46.

[7] Emmon Bach. *Nouns and Noun Phrases*; J. R. Ross. *On Declarative Sentences.*

[8] Noam Chomsky. *Aspects of the Theory of Syntax*, p. 3.

[9] David Lewis. *General Semantics*, p. 170.

[10] Gottlob Frege. *The Thought: a Logical Inquiry.*

[11] Although Montague, for example, suggests that data relating to the real truth-value of a proposition are crucial for any semantic theory, the theory itself is not adequate if false propositions can be obtained in it as a corollary of true propositions. (Richard Montague. *English as a Formal Language).*

[12] Donald Davidson. *The Method of Truth in Metaphysics.*

[13] Donald Davidson. *Truth and Meaning*, p. 306.

[14] *Ibid.*, p. 310.

[15] Donald Davidson. *Reality without Reference.*

[16] Donald Davidson. *Truth and Meaning*, p. 312.

[17] *Ibid.*, p. 306.

[18] David Lewis. *Art. cit.*, p. 169.

[19] Such sentences play a significant role, of course, both in the methodology of science in connection with the defining of dispositional concepts and, in general, the status of theoretical terms, and in connection with such problems as making the concept of natural law precise, differentiating essential and accidental properties, explicating the concept of confirmation, and so on.

[20] See: Saul A. Kripke. *Semantic Considerations in Modal Logis.*

[21] Franz Brentano. *Psychologie vom empirischen Standpunkt*, Vol. 2.

[22] Edmund Husserl. *Logische Untersuchungen*, Vols. 1 & 2.

[23] See below for the approaches of Montague and Cresswell.

[24] J. L. Austin. *How to Do Things with Words*, pp. 108-119.

[25] H. P. Grice. *Meaning.*

[26] H. P. Grice. *Utterer's meaning.*

[27] John R. Searle. *Speech Acts.*

[28] See: K. Ajdukiewicz. *Synthetic Connexion.* Strictly speaking, there is a difference in various researchers' definitions of cat-

egorial language. Montague, for example, defines it algebraically, Lewis in terms of the grammar of 'phrase structures', Cresswell in set theoretical terms. 'Categorial grammar' is regarded in general as 'recognising' grammar. It is a matter of a procedure for analysis of a sentence that begins from the logical level and is completed by a symbol of the sentence. But in the syntactic metatheory, 'recognising' grammars are formally equivalent to 'generative' grammars that presuppose a reverse procedure of the syntactic analysis of sentences. (See: Yehoshua Bar-Hillel. *Language and Information.)*

[29] David Lewis. *Art. cit.* I begin my examination precisely with this conception just to simplify the structure of the exposition; theoretically and historically, the credit for explicative examination of the meaning of expressions as a *function* is Montague's.

[30] *Ibid.*, p. 182.

[31] *Ibid.*, p. 184.

[32] Richard Montague. *Universal Grammar;* idem. The Proper Treatment of Quantification in Ordinary English.

[33] The truth of an ambiguous sentence, for instance, is determined in regard to a certain resolution of its ambiguity by presenting various trees of its analysis; truth is thus defined for a pair of sentences consisting of the sentence and a certain analysis of its structure. The concept of logical consequence, too, is defined only in relation to an analysis resolving the ambiguity of a sentence.

[34] Richard Montague. The Proper Treatment of Quantification in Ordinary English, *Art. cit.*, p. 235.

[35] Richard Montague. *English as a Formal Language.*

[36] The quantifier character of this expression is conveyed by the indefinite article.

[37] Richard Montague. The Proper Treatment of Quantification. *Art. cit.*, pp. 237-241.

[38] *Ibid.*

[39] Richard Montague. *Universal Grammar.*

[40] M. J. Cresswell. *Logics and Languages*; idem. Adverbs of Space and Time.

[41] W. V. O. Quine. *Methods of Logic.*

[42] David Kaplan. Dthat; *idem.* On the Logic of Demonstratives.

[43] See the studies of George Lakoff, J. D. McCawley, J. R. Ross, and Gilbert Harman listed in the bibliography.

[44] George Lakoff. Linguistics and Natural Logic. *Op. cit.*, p. 648.

[45] *Ibid.*, p. 545.

[46] Herman Parret. *Discussing Language,* p. 166.

[47] George Lakoff. *Art. cit.*, pp. 649-650.

[48] W. V. O. Quine. *Ontological Relativity and Other Essays,* p. 27.

[49] W. V. O. Quine. *Philosophy of Logic,* p. 649.

[50] Compare with Wittgenstein's similar statement: 'To understand

a sentence means to understand a language' (*Philosophical Investigations*, p. 81a).

[51] W. V. O. Quine. Meaning and translation; *idem*. The inscrutability of reference.

[52] 'What "all of this" (i.e. the conception of the indeterminacy of translation—*R.P.*) does occasion, if grasped is a change in prevalent attitudes toward meaning, idea, proposition. And in the main the sad fact is, conversely, that "all of this" escapes recognition precisely because of the uncritical persistence of old notions of meaning, idea, proposition. A conviction persists, often unacknowledged, that our sentences *express* ideas and express *these* ideas rather than *those*, even when behavioural criteria can never say *which*.' (W. V. O. Quine. Replies, p. 276; my italics—*R.P.*).

[53] 'What I was trying to convey rather was that from the very start (even in the matter of "rabbit" versus "rabbit stage") the mistake we have to guard against is the unwarraned positing of *linguistic universals*' (W.V.O. Quine. First General Discussion Session, pp. 488-489; my italics—*R.P.*).

[54] See: R. Pavilionis. The Philosophy of Language: the Problem of Meaning; *idem*. The Philosophy of Language: the Problem of Analysing Belief Sentences; idem. *Kalba, Logika, Filosofija*.

[55] I am employing the term 'concept' as neutral in relation to the pair of concepts 'signified and signifier' traditionally employed in the literature, which already terminologically excludes examination of the signified separate from (without) the signifier.

[56] Gottlob Frege. Compound Thoughts. *Art. cit.* p. 2.

[57] P. Geach, M. Black (Eds.). *Op. cit.*, p. 4.

[58] Yehoshua Bar-Hillel. *Op. cit.*

[59] Ludwig Wittgenstein. *Tractatus Logico-Philosophicus*, p. 43.

[60] Robert C. Stalnaker. Indexical Belief. *Art. cit.*, p. 134.

[61] In order to abbreviate 'the meaning, the concept *p, q*...', I shall speak simply of '*p*', '*q*'....

[62] 'Every determination is a negation'.

[63] Resorting to a crude analogy one could say: a person digests one dish or another, distinguishes it from another dish, and so on, even when, as a rule, he does not know about the processes going on in his stomach.

[64] See: W. V. O. Quine. The inscrutability of reference. *Art cit.*, pp. 144-146.

[65] Bärbel Inhelder and Jean Piaget. *La génèse des structures logique élémentaires.*

[66] A. I. Meshcheryakov. *How the Human Psyche is Formed in Blind Deaf-mutes.*

[67] See: R. Pavilionis. *Yazyk i logika.*

Chapter III

THE PROBLEM OF THE REFERENCE OF OBJECTS

1. Names and Descriptions: the Logical Tradition and Natural Language

My main aim in this chapter is to determine what classical and contemporary semantic conceptions provide for clarifying the *links of language and the world*. I hope, through a consistent examination of the various approaches to this matter and a presentation of my understanding, to show the increasing importance the *factor of the context* of the use of linguistic expressions is acquiring as the adequacy of the theory increases. In the end it will be seen to be necessary to hold *the conceptual systems themselves of speakers of language* as the most important factor.

Examination of the relationship of thought, language, and the world presupposes analysis of the functioning of the symbolic apparatus by which fragments of this world are fixed, or 'grasped'. In order to speak (truly or falsely) about the properties and relations of objects of the world, in other words, in order to predicate something about these objects, we must have the possibility of *pointing* or *referring* to them. That function is allotted in natural language *to singular terms*, i.e. to *proper names* and *definite descriptions*. The reference to an object in the case of proper names, or to the *referent*, is made through its *name* (for example, 'Aristotle' or 'Aphrodite'); in the case of definite descriptions through its *description* ('the pupil of Plato and teacher of Alexander the Great', 'the goddess of love').

Behind the seeming simplicity of these things there lies, however, one of the most profound, fundamental problems of the philosophy of language, which is to clarify the semantic status of singular terms, or the problem of *their comprehensibility*. The problem consists in particular in the quest for an answer to *whether proper names have meaning*, i.e. whether they are meaningful, similar to predicates, i.e. to adjectives, common nouns, and verbs, and the definite de-

scriptions constructed from them. Clarification of the status of proper names leads to examination of the problematic of the interchangeability, or substitutivity, of singular terms in intensional contexts, in particular in a context of belief (see Ch. V). Analysis of this context, as I have already remarked, predetermines the answer to the cardinal question of the relationship of thought, language, and reality, and, from my point of view, of language and the conceptual 'picture of the world'.

Reference is a pressing matter in those contemporary formal theories of natural language in which analysis of the relation between language and the world is essential for formalising the meaning of linguistic expressions. Then one starts, as a rule, from a definite logical conception of reference. The ambiguity of the treatment of reference known in the tradition of logical analysis is primarily linked with attempts to transfer the conceptions of reference developed for analysing artificial languages to the realities of the use of natural language.

Study of the problem of reference in logical analysis was motivated by a need to discover the logical form of the corresponding linguistic expressions (proper names and definite descriptions) concealed behind their 'surface form' or 'surface grammar'. In view of the conceptual and theoretical relationship of the problem of the reference of linguistic expressions and the question of the existence of objects correlated with them what determines a conception of reference is logical analysis of *true statements of the identity of the objects* denoted by singular terms and of *statements of predication about non-existent objects* designated by singular terms.

According to Frege's classic conception of reference[1] a name exercises a function of reference because of its sense or rather if and only if there is an object that satisfies the sense of the name; naming always presupposes description of the object to which the name refers. Frege also considered that if something was asserted then there was always a *presupposition* that the simple or complex name employed, referring to an object about which something (true or false) was asserted, had a referent. If someone says, there-

fore, 'Kepler died in misery', there is a presupposition that the name 'Kepler' denotes someone, in other words, that Kepler existed. But it does not follow that the sense of the sentence 'Kepler died in misery' contains a thought that the name 'Kepler' denotes someone. According to Frege, the presupposition does not come into the sentence as a proper part of it but is a *condition of its affirmability as true or false*. If the presupposition is not satisfied, i.e. if the referent does not exist, the sentence concerned is said to lack truth-value but is meaningful.

In Russell's conception (he did not accept Frege's explanation of the informative character of statements of identity) definite descriptions differed essentially from what he called 'logically proper names'. Definite descriptions, unlike these, were incomplete symbols that did not refer to definite objects and consequently had no independent meaning, although 'any propositon in the verbal expression of which they are met has meaning'.[2] Russell, like Frege, understood the term 'meaning' extensionally: in the case of a proposition it was its truth value. He considered a logically proper name a simple symbol, directly designating an individual which is its meaning, and having this meaning in its own right, independently of the meanings of all other words.[3]

In that view logically proper names in natural language are closest to demonstrative pronouns like 'this', 'that','these', 'those', used to refer to an object, with which the speaker is 'acquainted'—in Russell's interpretation of the term—and with which he is dealing in an ostensive definition of the object. 'A proper name, as opposed to a concealed description, can be given to the whole or to any part of what the speaker is at the moment experiencing',[4] as a definite set of coexisting qualities with respect to which knowledge of all its components is not presumed. For such names the 'question of existence' simply does not arise. The semantics of the *Principia Mathematica* simply did not allow for non-denoting proper names (the theorems of specification $(x)Fx \rightarrow Fa$ and of existential generalisation $Fa \rightarrow \exists$ xFx contained in it mean that each individual constant of this system is denotive). A statement that contains a negation,

i.e. $\sim(\exists x)\ (x = a)$ is therefore false with any choice of an individual constant in place of 'a'. Furthermore, since '*a* does not exist' is taken as meaningless if '*a*' is a logically proper name, it follows that proper names in natural language are not logically proper names, in view of the comprehensibility of the analogous statements in which they are contained. In Russell's opinion they are concealed or abbreviated descriptions from the standpoint of a logically correct analysis of their functioning, but not from the angle of their 'surface grammar'. Therefore, if anyone says, for example, 'There is no Santa Claus', one must determine what definite description substitutes this name before one defines the content of this statement.

The essential difference between definite descriptions and logically proper names is that since the former can be empty they generate ambiguity as a consequence of a narrow or wide understanding of the description's scope. The proposition with the logical form $\sim G(\iota x)\ (Fx)$, for instance, in which '$\sim$' is an operator of negation, 'ι' is an operator of description, '$(\iota x)\ (Fx)$' is a definite description, and 'G' is the predicate, has two interpretations according to Russell. With one it is regarded as an abbreviation for $\sim[(\exists y)\ ((x)((Fx) \leftrightarrow (x=y))\ \&\ (Gy))]$ (which is true with an empty description). With the other interpretation this proposition is treated as an abbreviation for $(\exists y)\ [(x)(Fx \leftrightarrow x=y)\&\sim Gy]$ (which is false with an empty description).

Negation is thus represented as a partial case of exposure of the difference between the logical behaviour of definite descriptions; sentences that contain definite descriptions in general have logically nonequivalent interpretations, depending on the scope ascribed to the description. The sentence 'George IV thinks that the author of *Waverley* is Scott', for instance, can be given an interpretation in which the descriptive phrase 'the author of *Waverley*' is used to describe a definite *individual* as the *object* of George IV's thought, or the same descriptive phrase is used to express the *content* of George IV's thought. Similarly, when we say 'George IV wished to know whether Scott was the author of *Waverley*, we normally mean 'George IV

wished to know whether one and only one man wrote *Waverley* and Scott was that man'; but we may also mean: 'One and only one man wrote *Waverley*, and George IV wished to know whether Scott was that man'.[5]

The argument about definite descriptions generating ambiguity, essential as it is for the further development of logical analysis of natural language, originally employed by Russell when defining the logical status of empty definite descriptions in the case of extensional contexts, was subsequently applied by Smullyan as a counterargument to Quine's criticism of quantification in modal contests.[6] The definite description contained in the sentence 'Necessarily, a number of planets is greater than seven' obtained as a conclusion from the premisses 'Nine is the number of planets', and 'Necessarily, nine is greater than seven', by identity substitution, may be treated as generating an ambiguity of the *de dicto/de re* type, correspondingly, this sentence is obtained formally either by interpretation of $\Box[(\iota x)(Fx)](\iota x)(Fx)>7)$, in which '$\Box$' is an operator of necessity (with which the conclusion is taken as false and not following from the premisses), or the interpretation $[(\iota x)(Fx)]\Box((\iota x)(Fx)>7)$ (in which the conclusion is taken as true and following from the premisses concerned in the given modal context).

Note in this connection that the *de dicto / de re* distinction (already known in medieval logic) is the distinction, in the classical view, between ascribing properties of modality to the *proposition (dictum*, that which is said), for example 'It is possible that Socrates will escape' and ascribing this property to a *definite object (res*, the thing spoken of), correspondingly, 'Socrates will possibly escape'. When the modality *de re* is taken as irreducible to *de dicto* the distinction is regarded as leading to the revival of the Aristotelian doctrine of *essensialism*, (according to which properties inherent in an object are essential and necessary). In modern logical studies in which modality is combined with quantification it is correspondingly a matter of the distinction expressed by the formulas $[\Diamond \exists xFx]$ ('There is possibly an object that has the property F') and $[\exists x \Diamond Fx]$ ('There is an object that possibly has the property F'),

$[\Box (x)Fx]$ ('Necessarily all objects have the property F'), and $[(x) \Box Fx]$ ('All objects necessarily have the property F'). It is a matter, rather, of the admissibility of adopting the logical relations expressed by the 'Barcan formula': $[\exists \Diamond xF \; x \rightarrow \exists x \Diamond Fx]$ and $[(x) \Box Fx \rightarrow \Box (x) Fx.]$[7]

Semantically this is connected with adoption of a definite conception of possible worlds; in the case of the *homogeneous* conception of these worlds, which means that only those objects exist in other possible worlds that exist in the real world, but differ from the latter in their properties and relations, the 'Barcan formulae' are taken as quite acceptable. The situation is altered in the *heterogeneous* conception of possible worlds according to which objects that do not exist in the real world may exist in other possible worlds.

An essential role is ascribed in the logical analysis of natural language to the distinction *de dicto*/*de re* both when considering the status of singular terms (primarily definite descriptions) and in connection with extrapolation of this distinction to *epistemic* modalities and examination of the acceptability and consequences of quantification, which in my interpretation is inseparable from considering linguistic expressions as more or less *referentially transparent relative to definite conceptual systems* (see Ch. V).

Differentiating between proper names and definite descriptions served Russell as the basis for explaining the informativeness of statements like 'Venus is the morning star', 'Scott is the author of *Waverley*', and so on. Their informativeness is ensured by at least one of the terms of the stated identity being an explicit or concealed description and not a logically proper name. The non-paradoxicalness of statements that deny existence like 'The round square does not exist' is explained in a similar way; the possibility of such statements—not only meaningful but also true—shows that the expression 'round square' is not a logically proper name.[8]

One concludes from this that any sentence whose grammatical subject seems to be naming a non-existent object, should be subjected to a logical analysis by which this sub-

ject is eliminated in the logical paraphrase of the sentences. In the cases being considered this analysis yields the following paraphrase: 'It is false that there is one and only one object that is round and square'. Formally this reads as: $\sim((\exists x)(y)(Fy\&Gy \leftrightarrow y=x))$, in which '*F*' is 'round', '*G*' is 'square'. The sentence with the form 'such-and-such object is such-and-such' (i.e. has such-and-such property), for example, 'The author of *Waverley* is a poet', is then analysed into a conjunction of three sentences, in this case the following: 'Someone wrote *Waverley*', 'At most one person wrote *Waverley*,' and 'Whoever wrote *Waverley* was a poet'. Formally this is denoted as follows: $[\exists x Fx \,\&\, (x)(y)((Fx \,\&\, Fy) \rightarrow x=y) \,\&\, (x)(Fx \rightarrow Gx)]$, in which '*F*' is 'wrote *Waverley*,' and 'G' is 'a poet'.

An essential consequence of this analysis, and at the same time what distinguishes it from a Fregean type of analysis, is that any sentence which has this logical paraphrase, or form, implies the sentence 'Such-and-such an object exists', i.e. $[(G(\iota x)(Fx) \rightarrow E!(\iota x)(Fx)]$ in which the consequent of the implication is an abbreviation of the formula $[\,'(\exists x)(y)\ (Fx \rightarrow y=x)'\,]$. Consequently this sentence is considered false if the object concerned does not exist. Similarly the result of elimination of the definite description from the statement of identity is to give the latter the logical form of existentially generalised conjunctions, and the symbol of identity is placed between the connected variables.

As a result, Russell's approach predetermined a different specification of the class of statements from Frege's. For Russell the grammatical correctness of a sentence was the *condition of its truthfulness or falseness,* and this condition in turn determined its meaningfulness. A dichotomy of *meaningless* and *truthfully characterised sentences* was thus put forward, and the term 'false' was given a broad understanding of 'not true'. According to Frege, the conditions of truth or falseness depended on considerations outside the context of grammar, and were matters of an *extralinguistic order.*

The approaches of Russell, Frege, Strawson, Kripke, and others discussed here and below can be considered in gen-

eral (in each separate case) as a specific reaction to Meinong's '*naive*' theory of reference that preceded them (by analogy with Cantor's 'naive theory of sets'), which to some extent reflected the intuition of speakers of natural language. According to this theory,[9] (a) there are objects that do not exist (for example, Pegasus) and (b) such objects have certain properties (as affirmed, for example, by the sentence 'Pegasus has wings'). The acceptable field of objects is consequently much wider than which actually exists.

The inadequacy of Russell's theory of descriptions for certain realities of natural language, in contrast to the formal languages of logic and mathematics, is the main motive of the critique made in a number of Strawson's studies.[10] The importance of this critique lies primarily in that it initiated the search for more adequate theoretical models of the realities of the use of natural language. The significance of the *extralinguistic factor* stemming from it provides an essential argument, as I shall try to show, against absolutising the 'semantics of language' and the absolutising of the role of natural language in communication and cognition following from that.

According to Strawson, the main flaw of Russell's theory on this matter lies in the identification of *sentence* and *statement* which can be made by means of the given sentence in various cases of its use. The need to differentiate, for instance, the case when someone utters the sentence 'The present King of France is bald' during the monarchy in France, from the case when someone utters the same sentence, for example, today, when France is a republic. In the first case there is a true or false statement (depending on whether the individual spoken about in the sentence, i.e. the king, is bald or not). In the second case nothing true or false is affirmed since the statement 'The King of France exists' is false as a *presupposition* and not as a logical *consequence* (as Russell suggested) of the sentence concerned. In this case the question of the truth-value of the sentence 'The present King of France is bald' simply does not arise; the singular term 'the present King of France' *suffers a failure of reference*. The truth-value is thus considered as the characteristic of *statements and not*

of sentences. Similarly to Frege's approach, Strawson does not regard the truth of a sentence as a necessary condition of its meaningfulness, although '*S presupposes S'* means that the truth of *S'* is a necessary condition of the truth or falsity of *S*.

What is constructive in Strawson's approach is that he examines not only the presuppositions of singular sentences (sentences that contain a singular term as their grammatical subject) but also what is presupposed by quantified sentences with the form 'All *A* are *B*', etc. The sentence 'All John's children are asleep' can be appraised as true, according to this approach, if and only if the sentence 'John has children', or 'There are children of John', is true,[11] i.e. if and only if the condition of the existence of the objects formulated in the presupposition is satisfied. Otherwise the two sentences 'All John's children are asleep' and 'It is not true that all John's children are asleep' create only an *appearance*, impression of contradiction.

The law of the excluded middle of classical logic requires one of such sentences to be qualified as false, but that alternative does not arise when the presupposition of both sentences is the false statement 'John has children'. The sentences cited are meaningful, they are neither true nor false; they are not *statements.* The logical principle cited therefore cannot be applied to them. For justice's sake, I should note that Russel also would have called these sentences meaningful, but for *opposite* motives: because, with a false presupposition, he would have classed both sentences as *false* statements.

Extrapolation of Strawson's concept of presupposition in modern formal theories of natural language leads to a much broader range of expressions of this language as a consequence of considering their semantic properties and relations. One speaks, for instance, of *'factive predicates'* ('It surprised Mary that Fred left' presupposes 'Fred left'), of the presuppositions of *questions* ('Has John stopped beating his wife?' presupposes, apart from 'John exists', and 'John has a wife', 'John beats his wife'), of the presuppositions of *promises* ('I promise to repay your debt' presupposes 'I have not yet repaid the debt'), of the presupposi-

tions of *orders* ('Open the door!' presupposes 'There is a door' and 'The door is shut'), and so on, which it is considered necessary to realise in order to perform the 'speech act' successfully.

Presuppositions are correspondingly treated as formulating the conditions that must be met for effective use of linguistic expressions for purposes of communication. These conditions will not be met, of course, if, for example, knowing that John has no children, we nevertheless ask 'Are all John's children asleep?'. A meaningful answer to such a question (from the standpoint of communication) presumes knowledge of the realisation of the presuppositions contained in the question. In other words, a meaningful posing of the question and the proposed reply to it depend on the *state of knowledge* of the questioner and the responder, and in that sense on the *context of use* embracing speakers of the language as bearers (from my standpoint) of *certain conceptual systems.*

In Strawson's later works[12] he admitted the possibility of relativising the viewpoint he defended, pointing out that the relations of natural language do not provide an unambiguous answer for accepting 'truth-value gaps' (when the presupposition of the existence of the object designated by a singular term is not satisfied) or, on the contrary, as with Russell, the filling of these gaps by a truth-value 'false' (when the corresponding statement of existence is false).

In my assessment, preference of one approach to another is connected with the conception of truth accepted in one case or another as a conception of the correspondence of sentences of natural language to reality. In fact, if one can speak at all of any context considered in Russell's analysis, it is a context of scientific *objective knowledge,* a context of serious, scientific discourse. In such a context sentences like 'Santa Claus lives at the North Pole', and equally 'Santa Claus lives at the South Pole', are false, although intuitively, in the context of the Christmas story for example, (if by the latter is understood not only what refers to the real world but also to any possible world), the truth status of these sentences is obviously different.

According to the classic model of a sentence as something that consists of an expression-subject serving the purpose of reference to an object, and an expression-predicate that characterises this object, a statement is true if the predicate expression is true in relation to the object, *identifiably* referred to by the subject expression. Correspondingly a statement is false if the predicate expression is not true in relation to the object. With an unsuccessful reference, to follow Strawson, we have a case of a 'truth-value gap'.

Starting from this model, the truth characteristic of a sentence that contains at least two (potentially) referring expressions, one of which suffers failure of reference, depends on the mode of articulation such a sentence is governed by. Either the term suffering a failure of reference is treated as absorbed by the predicate expression (and then one can say that we are dealing with a false statement) or this term is treated as the subject of the sentence (i.e. the identifiably referring term is absorbed by the predicate expression), and then this sentence is classified as *not subject to truth evaluation*.

The sentence 'The present king of France visited the Paris Fair', for instance, can be subject to the following versions of analysis, conditionally indicated by brackets: (A) '(The present King of France visited) (the Paris Fair)', which should be interpreted as a false statement in which an identifiably indicated object—the Paris Fair—is related as subject to a false predicate 'was visited by the present King of France'; (B) '(The present King of France) visited (the Paris Fair)' which is interpreted in the same way as in the case just examined. The last version corresponds to the standard translation of this sentence in first order logic, i.e. '*F* (*a*,*b*)' in which '*F*' is a two-place predicate 'visit' and '*a*'—'The present King of France', '*b*'—'the Paris Fair', are arguments of this predicate.

One reading or another of one and the same sentence of natural language that corresponds, as in the case considered above, to different versions of its articulation and analysis, and in general one interpretation or another of the sentence as ascribing of certain truth conditions to it that determine one truth-value or another—all this depend

essentially on the sentence's context of use. Allowance for the context of linguistic expressions, and that, moreover, not just in the traditional interpretation but also in the interpretation of it that relates to the speaker's *information* about the world and to what I call '*the conceptual system of the speaker of the language*', which is invariably present during the interpretation of linguistic expressions (see § 6 of this chapter)—in short, allowance in *this* sense for the pragmatic factor of the use of language makes Strawson's criticism of Russell's descriptive theory understandable. At the same time the reference to the pragmatic factor in that interpretation of it in which it comprises speaker's *referential intentions* (the importance of allowing for which I shall speak about below) indicates the rigidity and ideality of the criteria of an identifying reference that Russell and Strawson shared.

Reference to the pragmatic factor *so* understood (in contrast to the narrow treatment of it we discussed when analysing the reference conceptions of Montague's school) gives significance as well to the distinction introduced by Donnellan (which has received various modifications and interpretations) between the '*attributive*' and the '*referential*' use of definite descriptions.

Donnellan has criticised both Russell's theory of descriptions and Strawson's approach from the angle of their adequacy to the realities of the functioning of descriptions in natural language.[13] They did not make allowance, he claims, for the fact that one and the same definite description met in one and the same sentence (for example, 'The man who murdered Smith is insane') can perform different functions, viz. *attributive or referential*. Although the existence of an object designated by the definite description is presupposed in both cases, cases of false presupposition are characterised by different consequences.

With attributive use the referent is not fixed; something is asserted about any object that satisfies the description in question. If such an object does not exist, the statement will not be liable to evaluation in terms of truth. That function of a definite description is the object of consideration in Russell's and Strawson's theories. In the case of referen-

tial use of a definite description the referent is fixed (as in the example cited above, in which the description the 'murderer of Smith' may point to a certain *concrete* individual, for example, Jones), but the object need not necessarily correspond to the description concerned. This is possible because speakers of natural language are not omniscient (as in the example cited; many may not share the opinion that Jones is Smith's murderer, which nevertheless does not prevent this description performing the function of reference precisely in respect of Jones).

Hence it follows that reference may be performed in natural language as well by a *false* description about the object *that* does not *correspond to it*. The statement's failure to satisfy the presupposition of the existence of an object does not deprive it of its truth-value in this case. Furthermore, if the statement about the object concerned is true *the statement itself* must be taken as true. When a definite description performs this function, its referential role is also clear from the fact that, if it does not correspond to what it refers to, the statement in which it is contained may be conveyed by substituting a description that does correspond to the designated object. The possibility of this substitution is explained by the purely *referential* use of the description.

Such a use of description (when the reference to the object is made by means of a description *inadequate* to the object) was not treated by either Russell or Strawson, since an object that uniquely satisfied the conditions expressed by a definite description was understood in the classic semantic tradition as the description's referent.

Russell's theory of descriptions is a 'purely' semantic one from the standpoint of the opposition of the semantics and pragmatics of natural language; the theory refers only to what is defined *by the semantics of the linguistic expressions themselves* and not to the context of their use. According to the theory of speech acts, Russell's theory deals with the content of 'locutionary' acts but not of '*illocutionary*' ones.

It follows from this that it is not enough, in order to define the reference function of an appropriate linguistic

expression, to know its syntactic or semantic category; for that it is necessary to know the *referential intentions* of the speakers of the language who use the expression in a definite context. To which one must add that understanding of this context plays no less an important role in determining the function in which a description is employed. But neither the *referential intentions* of users of the description, nor *understanding of the context of its use* can be the object of any semantic theory whatsoever if it is not concerned with information about the world contained in the conceptual systems of the language's speakers.

2. The Semantics of Names: a Critique of the Classic Tradition of Analysis

As we have seen, the question of the conditions that must be satisfied so that a reference can be made by means of a definite description and a proper name is of great importance for the theory of reference of natural language. This question, which is directly linked with that of the relationship of descriptions and names, is one of the semantic status of names as such.

John Stuart Mills' classic doctrine that names have a *denotation* but not a *connotation* (in his terminology) rests on the following theses: while a definite description refers to an object only because it describes a certain aspect of it, a proper name does not describe an object and is not true in relation to it, but simply *names* it (it is meaningless, for instance, to ask 'What does "George Washington" mean?' as a question of the *meaning* of this name, in contrast to the question 'Who is George Washington?' as a question about the *denotation* of the name). However such an approach poses the problem of explaining the informativeness of statements of identity and likewise of the status of proper names in declarative expressions.

An explanation of these phenomena is proposed in Russell's doctrine. He considered proper names (in contrast to logically proper names) as concealed or abbreviated de-

scriptions:[15] the answer to the question of the referent of a proper name can be provided either by a procedure of ostensive definition or by a description that is uniquely satisfied by the object. But—and this is the nub of the matter—such descriptions may not be considered as equivalent to names by definition because any true statement would then have to be taken as analytically and not factually true and any false statement about the object correspondingly as contradictory. If the name 'Aristotle', for instance, meant, 'the teacher of Alexander the Great', then the statement 'Aristotle was the teacher of Alexander the Great' would be a pure tautology from the standpoint of the 'semantics of language' (in this case English), i.e. from the standpoint of the rules of denotion accepted in it. But it is not such, because it expresses a *fact*: Aristotle taught Alexander the Great, i.e. something that could be proved false.

Thus, if agreement could be reached about the exact characteristics that constitute the identity of an object, and if the criteria of proper names of natural language were in all cases rigorous, specific, and invariant, then a name would be nothing else than an abbreviation of a description. Then two speakers, moreover, would express *different* propositions when using one and the same name in one and the same sentence with one and the same truth-value, if the set of descriptions they consider in relation to the object was not identical (the sentences containing the context of belief might in this case differ according even to their *truth-value*).

Strawson and Searle[16] suggest, in contrast to Russell and Frege, that this set is a certain compound description embracing a maximum of the facts concerned. According to Strawson, this description should include both the trivial and the non-trivial characteristics of the object usually referred to by different speakers of the language. According to Searle, it should be a matter not of a separate description but of a certain *disjunction of identifying descriptions* analytically connected with the name concerned and functioning as its descriptive support. If none of the identifying descriptions related to a certain object as true is not true

in relation to it, the object cannot be identical to the bearer of the name concerned.

An object must consequently satisfy at least some 'quite broad but unspecifying' set ('bunch') of such descriptions (logically, the set of open sentences or propositional functions from which the descriptions are built). But it is a problem to establish *which* of the sentences comprising such disjunctions are false, since the descriptive support of proper names is not exact in natural language.

Searle's quasi-affirmative answer to the question 'Do proper names have meaning?' contains an affirmation of an analytical link between a name and a certain disjunction consisting of a definite set of descriptions, and a treatment of names as logically connected with the characteristics of the object to which they refer. That one can say that proper names have meaning in a certain not wholly determined sense follows, according to Searle, from the very functions that they perform in natural language. The indeterminacy of the criteria about proper names is treated, in turn, as a necessary condition of the demarcation of the *reference function* in language from the *description function*.

Searle's conception, like the approaches of Frege and Strawson, is a modification of the idea that naming (or more generally denoting) consists in establishing a mental link between a set of characteristics ascribed to an object and its name, in identifying something (or someone) with the bearer of these characteristics, and through that identification in using the name of the object.

Now let us look at another approach that also makes an absolute of the referential aspect of the 'semantics of language', according to which the use of a name depends on its *causal* link with a definite procedure of initial naming by which a name becomes the name of the referent. In contrast to the Frege-type analysis, the basis of reference here is knowledge of *historical events and their causal consequences*, and not knowledge of the meanings of names or in the approach cited above.

3. The Absolutising and De-absolutising of the 'Semantics of Language' in Kripke's Causal Conception of Names

The theory of a certain set of descriptions which, being logically connected with a proper name, constitute its meaning in a certain indirect sense, although more adequate to the realities of natural language than the classic approach of Frege and Russell, is not free, at least, from the following principal objections.

(1) In the practice of natural language a description, whether single or group, does not necessarily specify a unique object. Even when it is uniquely specifying, it may be true, not of the referent a speaker has in mind, but of something else, or about nothing at all (or no one), as, for instance, in the case of false notions about something. (2) As Donnellan has shown, a description can be false even if there may be a reference. This calls for deeper explanation of the nature of the difference between proper names and descriptions.

According to Kripke the starting point for such a description should be a distinct delimitation of the two aspects contained in Frege's understanding of *meaning* (Sinn): (1) as the *semantic content* of proper names and definite descriptions ('designators' in Kripke's terminology) and (2) as a *mode of assigning,* or establishing their reference. According to Frege these aspects are contained in a definite description. For Kripke it was the second aspect that was relevant for speakers' assimilation of the procedure of *original naming,* including ostensive establishment of the referent. In other situations, according to Kripke's 'causal' or 'historical' theory of names, the referent is determined as a rule by transfer of the name from one speaker to another. In that connection the receiver of the name must try to learn to use it with the same reference as was originally established (or had in view): 'It is by following such a history that one gets to the reference'.[17] In developing this thought of Kripke's, one can say that whether a name has a referent is a matter of the *structure* of this causal chain whether it begins with the actual fixing of the referent, or

it does not lead to such a referent, having a certain *possible* object as its basis.

Following Kripke's argument, even in those cases of naming in which the referent is determined by a description, by some uniquely identifying attribute or property, these descriptions do not yield a meaning as a rule, are not synonyms of the name, and not what the name is an abbreviation for, but rather establish the *reference*, and that possibly by means of *accidental* attributes of the object. The name that designates such an object is then used to refer to it even in counterfactual situations in which the object does not have the properties concerned, i.e. in those possible worlds in which this object exists without having those properties.

When a designator refers to one and the same object in all the possible worlds in which it exists (without requiring, moreover, that it exists in all possible worlds), it is treated as *rigid*; in the opposite case it is taken as non-*rigid* or *accidental*. In Kripke's interpretation proper names are always rigid designators in contrast to definite descriptions, which are non-rigid designators as a rule (which corresponds to the *attributive* function of the use of descriptions in Donnellan's analysis). Only those members of the set of definite descriptions that designate *essential* properties of an object get the status of rigid designators, i.e. those that the object possesses in all possible worlds. The description of water, for instance, which is characterised by certain perceptually determined attributes at the level of ordinary experience, is compatible as a non-rigid designator with the description of water represented on the scientific level by the formula H_2O, as a rigid designator.

It follows from Kripke's argument that if names had the same meaning which corresponded to a description or family of descriptions, they would not be rigid designators; they would not *necessarily* designate the same objects in all possible worlds because *other* objects could possess the given properties in other possible worlds, unless essential attributes were resorted to in the formulation of the appropriate descriptions. The President of the USA in 1982 could have been someone other than Ronald Reagan, but no one ex-

cept Ronald Reagan could be Ronald Reagan. In other words, although Ronald Reagan might not have been the President (which is equivalent to proposing a possible world in which he was not President), Ronald Reagan could not help being Ronald Reagan (although he might not have been called 'Ronald Reagan').

The description 'The President of the USA in 1982' refers to a definite object of the real world, but someone else (for example, Edward Kennedy) might have been the President in 1982 and Ronald Reagan might not have been. Hence it follows that this description is not a rigid designator.[18] It is employed to refer to a definite object and therefore, when there is a counterfactual statement like 'We suggest that Ronald Reagan never stood for President', what is meant is not the proposition 'The President of the USA never stood for President' but the sentence '*This* man never stood in the presidential election'.

Another example: let the name 'Aristotle' designate 'Plato's greatest pupil'. It is naturally presupposed that in some possible world this man (i.e. who bears the name 'Aristotle') might not have been Plato's pupil. But then, if we said counterfactually: 'Let us assume that Aristotle did not concern himself at all with philosophy', we would not, of course, want to say by that: 'Let us assume that the man who studied with Plato and who taught Alexander the Great, and wrote such-and-such a book, did not occupy himelf with philosophy at all'. We would only want to say: 'Let us assume that this man did not concern himself with philosophy at all'.[19] In other words, when we say of *Aristotle* that he might not have done the whole set of things that are usually ascribed to him by speakers of the language, we are nevertheless speaking about *Aristotle*, considering him in a certain possible world.

It is clear from this that unreserved adoption of the point of view that the meaning of a name is given by a definite description (or descriptions) makes it *impossible* to explain the use of a name in a description or to examine a counterfactual situation. Indeed, this aspect of the concept of the rigidity of definite designators (in the case of the names examined) cannot help but be accepted by the theory of

a conceptual picture of the world constructed by a speaker of the language, because it provides a theoretical explanation of the *very possibility* of constructing *counterfactual* arguments, in particular the possibility of meaningful construction of counterfactual statements.

In the light of this approach the classic analysis of singular statements of existence (if by classic we have in mind the conception of names as abbreviated descriptions) is also unsatisfactory. If we accept, for instance, that the name 'Moses' signifies a 'person who did so-and-so', then if no one has done so-and-so, it means (according to this analysis) that Moses did not exist. But it does not follow at all from examination of the counterfactual situation (of a definite possible world) in which no one did 'so-and-so', that Moses might not have existed in that possible world. Statements like 'Moses existed' are thus not analysable in terms of satisfaction of the conditions of existence and of uniqueness with respect to some description.

Another important aspect of the concept of rigid designator is linked in Kripke's conception with the unacceptability of understanding a possible world that is discovered through objects contained in it that have properties such as make it possible to recognise them and identify them with objects of the real world (as in David Lewis's conception[20]). In Kripke's words,

> ... We do not begin with worlds (which are supposed somehow to be real, and whose qualities, but not whose objects, are perceptible to us), and then ask about criteria of transworld identification; on the contrary, we begin *with objects, which we have*, and can identify, in the actual world. We can then ask whether certain things might have been true of the objects.[21] (My italics—*R.P.*)

Kripke's critique of the essentialist understanding of possible worlds, and of the links that constitute them, is thus argued (1) by the properties which an object possesses in a counterfactual situation and which have nothing in common with the properties this object is identified with in the actual world; (2) that the object's essential properties, i.e.

those it cannot help having without losing its identity, are not those properties that are employed to identify this object in another possible world because there is no need for *such* an identification.

In my view the absolutising of this understanding of possible worlds fully corresponds in Kripke's conception to the absolutising of the universe of objects that constitute possible worlds, determinable from the postulated 'semantics of language' which in turn characteristically accepts the postulate of the rigidity of definite designators (proper names and certain sets of definite descriptions). Rigid reference to an object that contains a condition as its basis which takes a definite object of the real world and then examines its different transformations (what could happen to this object in circumstances different from real ones) frees Kripke from having to tackle the problem of *qualitative* transworld identification of the object, or rather of the problem of its *re-identification* in certain other possible worlds. A rigid designator signifies one and the same object in all possible worlds in which this object exists; such rigidly denoting designators do not change their referents during passage from one possible world to another in the *absolute* universe of objects. A speaker's use of a rigid designator is *already* a reference to objects of this universe.

These terms must obviously be governed by the laws of substitutivity (substitution) of the identical and existential generalisation even in modal contexts, since they are regarded as rigid in any context. From the standpoint of the approach under consideration the affirmation of identity by means of rigid designators (like 'Cicero is Tully') is a statement of necessary truth which is not, however, an *a priori* truth and not an analytical truth (establishable in accordance with the meaning of the linguistic expressions employed) but a necessary *a posteriori* truth. Identification of the *a priori* and the necessary is thus denied, on the one hand, and, on the other hand, of the a posteriori and accidental.

According to Kripke it is a matter of *metaphysical necessity* which defines a certain state of the world in the sense that it, the world, might be different than it is in fact, in

contrast to epistemological necessity, i.e. quite independent of any knowledge of the world by the speakers of the language.

The transworld identity of an object is consequently a metaphysical question for Kripke of what it means to say of an object that it is the same in different possible worlds, and not a *cognitive* question about how *speakers of a language* identify one and the same object in different possible worlds. Consequently, the problem of the substitutivity by identity can therefore only be solved, according to this approach, in terms of postulating an absolute 'semantics of language' (on the plane of the objects designated by expressions of the language), and not in terms of speakers' definite knowledge of the world. Pursuing the analogy with the interpretative conception, a speaker of the language must know all the metaphysically necessary truths of the natural language.

Both the critical treatment and the development of Kripke's analysis in the literature refer primarily to attempts to extrapolate the concept of rigid designator to *definite descriptions*. Any such extrapolation, of course, should be evaluated above all, within the theoretical context formed by the traditional *de dicto/de re* dichotomy and the dichotomy of *attributive/referential* use, and Russell's idea of the ambiguity generated by a definite description as the consequence of a *narrow* or *wide* understanding of its scope.

Linsky, for example, employing the idea that definite descriptions generate ambiguity when used in a non-extensional context,[22] resorted to a formal interpretation of the traditional *de dicto/de re* distinction.[23] The sentence 'It is necessary that the teacher of Alexander is a teacher', formally represented as $\Box T(\neg x)(Tx)$, gets a *de dicto* interpretation $\Box(\neg x)(Tx)]\ T\ (\neg x)\ Tx)$, with which it is taken as true, or a *de re* interpretation $[(\neg x)(Tx)]\ \Box\ T\ (\neg x)(Tx)$, in which it is false. (In the generalised version the statement $\Box\ G(\neg x)(Fx)$ in the *de dicto* interpretation is represented as $\Box\ [(\neg x)(Fx)\ G(\neg x)(Fx)$, and in the *de re* interpretation as $[(\neg x)(Fx)]\ \Box\ G(\neg x)(Fx)$.

Because every formula in the formal semantics of modal logic is evaluated in relation to each possible world, with

a *de dicto* interpretation values are initially assigned to $(\urcorner x)(Fx)$ and G in a world w: if the object that is the value of $(\urcorner x)\ Fx)$ in world w is a member of the extension of the predicative expression G in w, $G(\urcorner x)(Fx)$ is assigned a truth-value True, and in the opposite case, False. If $G(\urcorner x)(Fx)$ receives a value True in each possible world, then $\Box\ [(\urcorner x)(Fx)]\ G\ (\urcorner x)(Fx)$ is taken as true. With a *de re* interpretation, in contrast to a *de dicto* one, after attribution of the value $G\ (\urcorner x)(Fx)$ in w, $(\urcorner x)$ (Fx) is not assigned a value in each alternative possible world; the value of $(\urcorner x))\ Fx)$ fixed in w is taken, and the corresponding object is traced in each other possible world. It is also established whether or not it enters the extension G in each of these worlds. In the case of a positive answer $[(\urcorner x)\ (Fx)]\ \Box\ G\ (\urcorner x)\ (Fx)$ is true in w.

So the difference between the two interpretations is explained by the definite descriptions being subjected to an evaluation procedure in each possible world with a *de dicto* interpretation, while in the *de re* case the value of the description remains *fixed*, beginning with world w. The semantic role of the operator of the scope of a definite description consists in pointing to how the description is treated, whether as a rigid or a non-rigid designator.[24] Finally, if the description has one and the same value in each possible world, then it is not important for the truth-value of any modal sentence that contains such a description, in any world, by what procedure (*de dicto* or *de re*) the meaning of the sentence should be determined in this world.

Linsky considers the supposition that Russell's theory of description necessitates acceptance of a *de dicto* interpretation of modal sentences containing descriptions as central to Kripke's critical attitude to this theory. But if one assumes that these sentences can have a *de re* interpretation, then, like proper names, they may be employed to describe counterfactual situations (as in 'The teacher of Alexander the Great could not but be a teacher').

The objectivist conception of an absolute universe (consisting of rigidly indicated objects) inherent in this approach leads to making an absolute of the concept of the 'seman-

tics of language'. With that understanding the specific nature of speakers' conceptual notions is reduced in the end to different modes of defining one and the same objects of the absolute universe in which metaphysical necessity reigns rather than physical laws (in view of the corresponding acceptance of the ideology and ontology of possible worlds).

Kripke not only included proper names in the category of rigid designators but also a number of common names (nouns) such as the names of 'natural kinds' (for example, 'gold', 'water', 'cat', etc.), phenomena ('heat', 'light', etc.), in opposition to common names denoting 'conventional', 'artificial' kinds, like 'house', 'bed', etc. According to Kripke, the attributes usually employed to describe the corresponding objects as a rule reflect properties of the perception of said objects and are not necessary (as in the case, for example, of the sentence 'Gold is a yellow metal', which not only Kant but also his modern followers, including the linguist Katz, suggest as analytical).

These attributes serve *to refer* to the appropriate objects, but should not be treated as *synonyms* of the terms that designate the objects, i.e. as the *meaning* of these terms. An object that satisfies a definition containing these attributes is not necessarily the object denoted by the corresponding rigid designator, and conversely the referent denoted by a rigid designator would not necessarily satisfy this definition. In other words, as with proper *names, non-satisfaction* of such a definition would not signify negation of the existence of the respective object. Such common names can be employed to describe *counterfactual situations* (as in the sentence 'Gold might not be yellow'). They designate one and the same kinds in all possible worlds: we retain these kinds through names when 'passing' in metaphysical space from one possible world to another.

So, in Kripke's discussion, for example, the illustrative sentence 'A cat is an animal' (which, following the Kantian conception is treated as analytical in Katz' interpretative theory of semantics) is treated hypothetically as a possibility of discovery: what we have hitherto called 'cats' may in fact be robots controlled by Martians, i.e. not animals. The point is whether, in such a case, we will continue

to call the objects 'cats', or whether it would be necessary to change the meaning of this word in the 'semantics of language'. According to Kripke, denial of the existence of cats could not be a consequence of this discovery; it would be matter of the object we called 'cat' being in fact not an animal but a robot.[25]

Furthermore, since it is acceptable to consider the sentence 'Cats are animals' true in science today, then insofar as this related to the *nature* of the object concerned, such sentences should be qualified as *necessarily true*, and as *a posteriori* and not *a priori* and analytically, because such sentences are arrived at through empirical investigation. Similarly, denial by a biologist that whales are fish does not signify that his concept of fish differs from that of the ordinary speaker of the language. He simply improves it by establishing that the sentence 'Whales are mammals, and not fish' is necessarily true. But neither the sentence 'Whales are fish' is regarded in any case an *a priori* or analytically true statement.

It should be noted that these cases are characterised in Katz' interpretative theory of semantics as *changes of the meaning* of the term, because the meaning of a word is something quite definite, and transmits a single bit of information.[26] The inclusion of one semantic marker or another as a constituent of meaning of a linguistic expression (as in the case of the semantic marker 'animal' cited above) is determined according to this theory by its being rather simpler to explain this marker by speakers' intuition about the semantic properties and relations of sentences in which the word 'cat' is met. This marker, being taken as a constituent of meaning (in the context of the postulated 'semantics of language'), automatically makes the corresponding attributive statement analytical (for example, 'A cat is an animal').

Katz points out that in his examination of the problematic of meaning Kripke does not differentiate what could be called *'scientific meaning'*, the specifications of which answer the question 'What is the essential nature . . . of the referent of "W"?', from what Katz calls *'lexicographical meaning'*, the specifications of which answer the question

'What does the word *W* mean in the language *L*? (Compare, for example, the words 'wave', 'gold' in the ordinary and the scientific, physical understanding).[27] From Katz' point of view, scientific meaning, for example, may be a definite *physical* hypothesis, while the lexicographical meaning is a definite *linguistic hypothesis*.[28] The former indicates what a scientific theory says of the nature of the objects that constitute the extension of the expression *W*, so pursuing the aim of predicting and explaining the behaviour of these objects. The latter indicates what another scientific theory, i.e. grammar, says about the meaning of expression *W* in order to predict and explain the semantic properties and relations of the expressions in which *W* is met.

Katz's 'lexicographical meaning' is closest of all to what Kripke calls a '*phenomenological concept*', but this is not given the status of meaning in his theory, i.e. that is to say what, according to Katz, is subsequently replaced by a scientific concept. That is only a rough, often unreliable approximation to what might be called 'a scientific meaning', although undoubtedly employed by speakers of the language as a reference to the corresponding object. This concept, while not embracing the essential properties of the object (those it possesses in all possible worlds), therefore cannot be treated as meaning (in the intensional understanding) or part of the meaning of the corresponding linguistic expression. Hilary Putnam also considers that speakers of a language when using terms that designate natural kinds, are guided by definite semantic *stereotypes* of them, and not by a meaning defined by the extension of the term.[29] The characteristics contained in the stereotype of the word 'lemon' (round, yellow, sour, etc.) are by no means its essential semantic components, but serve as references to the object thanks to the original name of it transmitted from one speaker of the language to another. In order to describe the concept of the extension correlated with this stereotype, he therefore proposes using something like 'fuzzy sets', but not sets in the classical understanding of them.

Putnam's scientific concept is rather closer, however, to a definition of the extension of a term, since this concept is

not absolutely guaranteed against errors, he speaks of *real extension* which is one and the same in all possible worlds. In view of the impossibility of excluding error in a scientific concept, however, this extension proves, rather, to be a never-attainable ideal. Insofar as a stereotype does not define extension, it is not intension; at the same time such stereotypes serve as the single concepts of many terms employed by speakers of a language. From that it is concluded that speakers do not possess intensions: *meaning, as the intension of a term, is not a mental object.* But it is precisely 'lexicographical meaning' (according to Katz) that characterises the early stage of the development of science, which is the object of examination in the interpretative theory, and also, incidentally, in other linguistic theories of natural language. It is described, as I have already remarked, in terms of *universal* semantic entities.

Katz treats 'lexicographical meaning' as an ingredient of the 'semantics of language'. It differs both from scientific meaning (including any science except the science of natural language), and from any other information that is employed by speakers to make reference to objects but is not part of the 'semantics of language' as the object of semantic theory. Lexicographical meaning' is semantic information about natural language, being part of its semantic structure, i.e. defining the semantic properties of a linguistic expression and its semantic relations with other expressions of the language, and at the same time defining the reference of the linguistic expression. This information relates to the speaker's *semantic competence* in contrast to what Katz calls '*non-semantic*' or *auxiliary* information that can also be employed by speakers to refer to appropriate objects but that is not part of the 'semantics of language'.

This demarcation signifies a separation of *knowledge of the natural language* from *knowledge of the world*, dictionary information from encyclopaedia information about the referents of linguistic expressions, and of the semantic component of grammar from the system of 'factual beliefs'. The latter, unlike the former, are supposed not to be subject to formalisation. The encyclopaedia information, for instance,

that speakers have about stewardesses, the military, or the clergy, etc., differs to a greater extent from dictionary information, according to Katz, during transfer from one speaker to another, depending on their social position, cultural interests, etc. Speakers' knowledge that stewardesses, the military, and the clergy wear uniforms, for instance, helps them to recognise the corresponding objects (as definite stereotypes) although such knowledge is not semantic from the standpoint of this approach.

The demarcation under consideration corresponds to the demarcation of the *grammatical meaning* and the *uttered* meaning of an expression.[30] The former is the meaning of an expression as a *type*, or the meaning of a linguistic expression in a *null* context. The latter is the meaning of an expression as a *sign*, or the meaning of an expression as it is used in a definite context, and is the object of a suggested non-existent theory of *performance* of language in contrast to the *theory of competence*. In other words, the theory of performance ought to explain the mode of interaction of contextual factors with knowledge of the grammatical structure of sentences determining the *uttered* (or *expressive*) meaning of sentence-signs. Since the theory of semantic competence defines the grammatical sense of type-sentences, the theory of performance has the task of explaining the divergence of uttered and grammatical meaning in non-null contexts. Speakers' encyclopedic knowledge, and what is called in linguistic philosophy speakers' 'pragmatic intensions' as participants in a definite communicative act, perform an essential role in the divergence under consideration.[31]

One must note, when comparing Kripke's approach to the semantics of expressions of natural language with the interpretative conception of semantics, that in both cases there is an hypostatising of the 'semantics of language', although in essentially different perspectives of its evaluation. In Katz' theory it is a matter of defining the absolute universe of meanings and of examining their intrasystemic relations without a real exodus into extralinguistic reality, i.e. without reference to the corresponding universe of objects. In Kripke's theory it is a matter of defining the absolute

universe of objects (treated from the standpoint of their behaviour in various possible worlds) as referents of definite expressions of natural language and only in that possible understanding of meanings as (partial) functions having possible worlds as their arguments, and the corresponding objects of the universe as values. The critique of the understanding of meaning that is peculiar to the interpretative conception does not lead to a relativisation of meaning in respect of speakers' conceptual systems. Correspondingly, whereas we are dealing in the one case with a *metaphysically omniscient* speaker of the language as a construct of the theory, in the other case the role of this construct is assigned to a *linguistically omniscient* speaker. But in both cases, however, the intuition of *real*, neither metaphysically nor linguistically omniscient, speakers of the language remains unexplained.

In the light of what has been said about common nouns it is obvious that in both theories, as theories of the 'semantics of language', it is impossible, within a coherent theory, to allow for so different levels of speakers' knowledge—from the ordinary, represented in definite stereotypes to the scientific, including the very different aspects mediating it. An inevitable consequence of such an attempt is an absolutising of various aspects of the 'semantics of language', even though that happens on different planes, viz., referential and intensionalist.

The meaning of the set of general terms of natural language (such as 'yellow', 'heavy', 'sweet', 'interesting', 'good', etc.) is not amenable to definition in terms of necessary and sufficient conditions as identification criteria of the objects related with them, as absolute criteria (respective of the context of use) of the correctness of their use. In regard to them, rather, there is what Wittgenstein called *'family resemblance'*. The 'definite indefiniteness' and 'blurring' of the semantic boundaries of these general terms makes them quite flexible and so functionally effective for use in many contexts of natural language. Identification of the corresponding objects by their phenomenological properties, and by a context of use of general terms stemming from a certain context, are quite sufficient (i.e. are what is required)

for a variety of pragmatic aims of language communication, and of linguistic behaviour in general.

Finally, although Kripke's conception of possible worlds is stimulated by considering a real object in different counterfactual situations, and in that sense yields *one* clear criterion of the tracing of the object through possible worlds, i.e. in different counterfactual situations in which it is not characterised by properties assigned in the actual world, this is not the sole possible conception that in some way meets a speakers' intuition. The speaker has to decide the problem of identification not only in terms of examination of a real object placed in different counterfactual situations, but also of comparison, identification, and differentiation of actual, and also possible, objects, starting exclusively from real or postulated properties of these objects. This is what constitutes a genuine problem of transworld identification of objects. In the logico-linguistic analysis of natural language it is the problem of the *coreference* of linguistic expressions.

4. Coreference: Entry into the Universe of Actual and Possible Objects

Problems of reference get attention in contemporary formal linguistic theories to the extent that these theories provide for investigation of *the links of natural language* and *reality*, i.e. insofar as such treatment is taken as essential for constructing a semantic theory of language. Nevertheless any such investigation presupposes examination of the question of the *coreference* of nouns and noun groups or phrases (in linguistic terminology) and singular terms (in the terminology of logic).

One has to deal with explication of this phenomenon (so characteristic of the use of natural language), which determines the semantic sequence and connectedness of an argument (or text) in linguistic theories every time the *anaphoric use* of pronouns is being analysed, i.e. when a pronoun is used in place of a certain antecedent, i.e. a name or noun group preceding it, or even some set of sentences de-

signating a certain object in as wide as possible interpretation of the term. By virtue both of the methodological principles of the linguistic theories concerned and of their predictive possibilities, it is a matter as a rule of explication of the anaphoric use of pronouns within *separate* sentences. But even in that narrow context we have to do with very complicated problems.

Definition of the function of denotation, as I noted above, is the very essence of investigations in *reference semantics*, since it relates not only to nouns and noun groups (as singular terms) but also to all meaningful expressions as definitions of their meaning. The positive aspect of a theory of coreference as the semantic basis of the anaphoric use of pronouns is obvious when it is a matter of reference and coreference in regard to objects of the *real world*. Examination of more complicated cases, however, calls for development and a certain modification of this approach. The status of the pronoun 'it' in the sentence 'John wants to catch a fish and eat it for supper', for instance, has been given the following explanation.[32] In this case it is not a matter of a coreference (what is indicated to by the pronoun 'it') directly between the appropriate expressions of the first and second parts of the sentence, but a matter of a coreference about the object that makes the hypothetical situation described in the first part of the sentence real. Similarly, starting from the dichotomy of the attributive/referential use of the descriptions, it is claimed, for example, that in the sentences 'John wants to marry a girl his parents don't approve of, and to have many children by *her*' and 'John was looking for the man who murdered Smith, and Bill was looking for him too' there is coreference even in the attributive interpretation of the definite descriptions contained in them, this coreference being the basis for the use of the pronouns. It is governed by a presupposition of the existence of objects satisfying the descriptions concerned, although—in contrast to referential use—knowledge is not presupposed as to *who* is the referent of the description, *what concrete individual* is the object of the search, as in the second sentence, i.e. *a priori* knowledge of his identity is not assumed. From this it follows that the dif-

ference between attributive and referential use has to be treated as *independent* of whether the presupposition of existence is linked with the noun group or not.

The distinction of attributive/referential use, on the basis of the realities of English, is interpreted (thanks to the fact that fixing of this distinction is facilitated in English by the existence of the grammatical category of the definite and indefinite articles), as well, as the distinction between two indefinite articles that distinguish the one from the other by the presence of differential attributes.[33] In view of the possible logical interpretation of the indefinite article as an existential quantifier, many logicians, following Russell's conception, fix this difference as one of the domains of quantification of the existential quantifier. Corresponding paraphrases of the sentence adduced above 'John wants to marry a girl his parents don't approve of' in quasilogical notation are presented as 'John wants $[(\exists x)]$ (x—the girl John's parents do approve of, & John marries x)' in the *attributive* case and '$[(\exists x)]$ (x—the girl John's parents do not approve of, & John would like to marry x)' in the *referential* case.

Similarly, in Montague's theory[34], in which quantifiers (like 'a man', 'a unicorn', 'a horse') refer to the same syntactical category and semantic type as singular terms do, the attributive/referential distinction is explained by a different domain of quantification of the quantifier words and a correspondingly different order of application of the syntactic and semantic rules for constructing linguistic expressions (as in 'John is looking for a unicorn', 'John is speaking about a unicorn', 'John owes Smith a horse') formally, by different mutual disposition of the quantifiers and predicates in the corresponding logical formula.

The ambiguity in question is explained as arising because of two different modes of correlating the quantifier expressions and the other components of the sentence. The attributive case, for instance, is explained in the appropriate tree diagram of the sentence 'John is looking for a unicorn' in terms of the relationship of the quantifier expression 'a unicorn'—by analogy with a singular term—and the verb 'is looking for'. As a result an intransitive

verb-phrase 'is looking for a unicorn' is formed; the sentence is written in quasilogical form as follows: 'John is looking for $(\exists x)$ (x is a unicorn)'. The referential case, in turn, occurs when the quantifier expression 'a unicorn' is correlated in an appropriate tree with the expression 'John is looking for x'. According to this analysis 'John is looking for a unicorn' is true if and only if there is a (definite) unicorn that John is looking for, i.e. that is characterised by the property 'being looked for by John'. In quasilogical notation this is: $(\exists x)$ (x is a unicorn & John is looking for x).

It is clear from what was said above that, in order to explicate the mechanism of reference and coreference as they operate in the practical use of natural language, it is necessary to have a definite *general* scheme of such explication that embraces both the simple and the more complex cases and (which is particularly important) is effected on a methodologically acceptable basis. Attempts to explain cases of reference and coreference, taken separately, do not make it possible to pass to this general scheme and, as a rule, suffer from indefiniteness. Yet such semantic elements lead to examination of these phenomena in the light of some one conception of *possible worlds*. An essential factor in that connection, that determines the adequacy of the analysis concerned, is acceptance of a definite status of the possible objects or individuals within the context of some one conception of possible worlds. In the tradition of referential semantics two approaches to this are distinguished: one in which a *single*, or *absolute*, universe is examined consisting of objects belonging to different possible worlds, which are values of non-logical constants of the natural language being analysed (as in the referential conceptions of the absolute 'semantics of language'); and another in which treatment of the concepts 'possible world' and possible object' is taken *relativised* in reference to the speaker of the language.

Let me now touch on certain elements of this approach as presented by Jaakko Hintikka, essential for the purposes of my analysis. From my standpoint the ideas put forward by him largely provide an adequate analysis of the phenom-

ena of reference and coreference, and equally a promising analysis of natural language in general.

5. Coreference and Hintikka's Semantics of Possible Worlds

Talk about coreference only makes sense in relation to the specification of a definite possible world or set of possible worlds. The external linguistic sign that a sentence must be treated from the standpoint of possible worlds, is the presence in it of *modal* terms, i.e. of terms that fix modal concepts. Understanding the latter means understanding a definite relation (depending on the content of the modal concept concerned) of alternativity to a definite set of possible worlds. When it is a matter of concepts that express propositional attitudes of a speaker of the language (his knowledge, belief, opinion, conviction, desire, striving, etc.) the relation of alternativity is treated in *relation to this speaker*, and possible worlds compatible with the given propositional attitude of the given speaker as a member of world *W* are understood as corresponding alternative worlds in relation to *W*.

In other words it is then a matter of worlds compatible with what a definite speaker of the language knows or believes, what he wants, what he is striving for, etc., in the given world *W*. The sentence 'John lost a black pen yesterday and Bill found it today' differs from this standpoint from 'John lost a black pen yesterday and Bill believes that he has found it today' in that in the second case it is a matter of the identity of the black pen that John lost yesterday and the pen that Bill found today, from the standpoint of possible worlds compatible with *Bill's given propositional attitude* and alternatives to the world described in the sentence under consideration; it is not excluded that Bill is mistaken in his opinion and has not found John's pen at all.[35] Analysis of the sentences containing a coreference across several contexts of belief (for example, in the sentence 'John thinks he has caught the fish he wanted to catch yesterday, but Bill thinks he has caught *it*'), i.e. sentences that contain a reverse reference to a possible world

mentioned earlier, are constructively analysed in terms of '*backwards-looking*' operators.

The following explanation is suggested in terms of this approach for cases in which *coreferentiality* takes place independently of the *referentiality* (in Hintikka's understanding, as reference to an object existing in the real world). Thus the coreferentiality in the sentence above 'John wants to catch a fish and eat it for supper' is that in each possible world compatible with what John wants, he will catch a fish and eat *that* fish for supper. There is coreference although *different* objects will be subjected to this operation in *different* possible worlds. The explication of the difference between the attributive and referential uses from the position of the approach is correspondingly based on understanding of a sentence with the form '*Fa*'—(in which '*a*' is a singular term and 'F' is a predicate expression containing one, or more than one, modal concept), for example, 'John believes the Prime Minister of Denmark is a Social Democrat',—as a sentence about different objects that are referred to by the singular term in different possible worlds; in this case it is a matter of *de dicto* interpretation.

With this interpretation the sentence concerned is understood as expressing John's belief that, *whoever is* the Prime Minister of Denmark he is a Social Democrat. John's belief may be based, for example, on information that the Danish Cabinet consists exclusively of Social Democrats. In that case John's belief refers to different Danish politicians who are Prime Ministers of Denmark in different possible worlds. These worlds are those that are compatible with what John believes. It is by virtue of that reference to different objects belonging to different possible worlds that it is not allowed to deduce the truth '$\exists xFx$' from the truth of '*Fa*' (as is prescribed by the classic rule of existential generalisation), i.e. affirmation of the existence of an object about which '*Fx*' is true), i.e. to conclude that 'Fx' is true about a certain *definite* object.

It can be a matter, in addition, of understanding the sentence '*Fa*' as one about a definite object that is re-

ferred to (selected) by a singular term in a number of possible worlds, including the actual world. In this case it is a matter of interpretation *de re*, or formally: $\exists\, xFx$, in which '*Fx*', for example, 'John believes that *x* is a Social Democrat'. In other words, John has in mind a *definite* Danish politician *who*, he knows, is the Prime Minister of Denmark, because, to have belief about who is what, means, according to Hintikka, to have belief about a definite individual who satisfies the predicate under consideration. Hence it follows that the rule of existential generalisation is not valid for *any* interpretation of singular terms; its application calls for meeting an *additional* condition, which consists in guaranteeing that '*a*' selects one and the same individual in all possible worlds as a member of which '*a*' is treated in '*Fa*', i.e. depending on what propositional attitude is ascribed to the given speaker of the language in '*Fa*'. If, moreover, this individual is presupposed to exist in the actual world, we have $(\exists\, x)\ (x=a\&Fx)$, or alternatively $(x)\ (x=a\rightarrow Fx)$.

The explanation of the reasons for the possibility, or conversely the impossibility, of employing an existential generalisation, in other words, the possibility of quantifying over a modal context, comes down to examination of the possibility of making a *cross identification* of individuals existing in different possible worlds, i.e. to whether one can say about a definite member (of the set of individuals) of one possible world that he is or is not *identical* with a member of another possible world.[37]

The uses *de dicto* and *de re*, according to Hintikka and in opposition to Donnellan's point of view, are not treated as not irreducible. It is a peculiarity of this ambiguity, which distinguishes it from other structural (syntactic or semantic) ambiguities, that the two interpretations under consideration 'merge' when there is certain *additional information*, i.e. information not contained in the sentence itself. The gap between a statement about several referents in a number of possible worlds and a statement about an actual referent, which is indicated by a singular term, disappears as soon as this term picks out one and the same object in all these worlds. Thus, in relation to our exam-

ple, the definite description 'Prime Minister of Denmark' 'singles out' one and the same individual in this case in all the alternatives to the actual world compatible with John's belief. That is interpreted, in turn, as meaning that John has an opinion about who Prime Minister of Denmark is.[38]

Analysis of the ambiguities of this kind raises a number of questions of a methodological order relating to the explicating possibilities of certain logically oriented linguistic theories of the 'semantics of language'. The possibility of the coincidence of *de dicto* and *de re* interpretations when there is supplementary information means that the ascription of a definite logical form to an expression depends, in the general case, on the *context of use* of the linguistic expression. The problem of exposing this ambiguity is solved of course by theories in which the meaning of the appropriate expressions is explicated in intensional concepts (for example, in Montague's grammar), i.e. in those in which the concepts of intensional logic are employed to define the meaning of the linguistic expressions and not just to establish their reference and coreference, as in generative semantics. At the same time, one must stress, when noting the great explicating possibilities of theories of that kind, that these possibilities are exhausted by *demonstration* of a definite set of interpretations of the linguistic expressions. These theories do not contain an *explanation* of the procedure for *resolving* these ambiguities,—choice, according to the context, in the broad sense, and according to the *speaker's knowledge* contained in his conceptual system, and according to a *definite* interpretation of the linguistic expression from the *set of possible interpretaions. It is this moment,* moreover, that is essential for speakers' understanding and use of natural language.

At the same time one cannot conclude from the fact that a sentence does not contain terms that express modal concepts, that this sentence cannot be paraphrased in a disjunction of several sentences when there is a certain situation or context that contains definite additional informations. In other words, it does not follow from the fact that an expression is, when it is taken by itself, i.e. out of context, that it will remain such when put into a certain con-

text. The relativisation of concepts of a possible world suggested by Hintikka, and of the concept of the object in relation to the speaker's propositional attitudes, is undoubtedly a contribution to analysis of the problem of reference and coreference. The scope of the phenomena embraced by this analysis, together with acceptance of a specific doctrine of possible worlds, promotes adoption of the conception of *language*, or *semantic*, *games*, to a considerable extent as the theoretical basis of this analysis, or of *game-theory semantics* as a definite system of rules for the semantic analysis of sentences of natural language.

The concept of a language-game correlates methodologically with Wittgenstein's concept of 'language games',[39] and theoretically with the analogous rigorous concept of the mathematical theory of games. From the standpoint of the approach being considered understanding a sentence is knowledge of what is happening in the language-game correlative with this sentence as a definite rule-governed activity of speakers of the language that links the language with the world about which it speaks.[40] The game itself is a consistent procedure of verification of the sentence (in particular the transformation of quantified sentences into atomic sentences governed by the rules of the game). One of the two players, called 'I' and 'Nature' respectively, tries to show that the sentence concerned is true (in the traditional sense), and his opponent, observing the rules prescribed for playing the game, tries to show that it is false. In other words, truth of the sentence signifies that the player called 'I' has a winning strategy in the game corresponding to the given sentence. Falsity of the sentence correspondingly implies that the *other* player, i.e. 'Nature', has a winning strategy.

The basic idea thus consists in determining the truth of a sentence by reference to a semantic game correlated with it. Since the verification of existential statements, for example, comes down to a search for and (when successful) finding of a definite object, semantic games connected with quantifiers (the main means of reference and coreference) are at bottom games of hide-and-seek in which the semantics of the quantifier expressions of natural language not

embraced by certain logical calculi, for example of first order logical theory, is brought out.

Without going deeper into analysis of this process, let me note that, in spite of a certain opposition of the *truth-theoretic* approach (as descriptive) and the *game-theoretic* approach (as one of activity) to analysis of the semantics of linguistic expressions, one canot help ultimately seeing their fundamental link, which consists, from my standpoint, in the following. In one case it is considered that knowledge of the meaning of a sentence implies knowledge of how the world should be for the sentence to be true, i.e. what objects we can come across when we know the meaning of a sentence. In the other case it is supposed that knowledge of the meaning of a sentence implies knowledge of the way it is realised, i.e. knowledge of the procedures for finding the appropriate objects. In short, while it is a matter in the first case of a *representation* (description) of the *truth-conditions of a sentence*, in the second it is a matter of *establishing their availability*, in the terminology of linguistic philosophy of how the truth of a sentence is established (substantiated) *in practice* in face of its possible refutation.[41]

An essential feature of the game-theoretic approach is that by the semantic interpretation of a sentence is not meant relating it to some sort of deep structure (from which it can be obtained syntactically), but a sequence of operations performed on the surface form of the sentence that step by step bring out its meaning. The point concerns application of the set of rules of the game to the sentence as rules of its semantic interpretation rather than syntactic deduction of the *surface* structure of the sentence from different postulated representations of it. Although the semantic analysis of a sentence is determined by search for its *concealed* semantic structure (i.e. the structure discoverable during application of the rules of the game), the result of each such application is a definite meaningful *(propertly constructed) sentence of the natural language*, i.e. a definite surface form. Regarded conversely this analysis can naturally be understood as a process of the generation of the given sentence.

The semantic interpretation of a sentence is thus not

determined directly by its surface form. Although each rule of the game operates on this structure, it converts it into another surface structure for subsequent applications of the rules. The semantic interpretation of the initial sentence is determined by the *game as a whole* and not by some part of it. With that understanding semantic analysis can be characterised as semantic prevision of what can happen in language games correlated with the sentence. The semantic representations formulated in a certain logical theory, for example in epistemic logic, are themselves treated at best as products of this analysis. They do not figure at any stage whatsoever of the semantic analysis. Finally, because semantic games refer to the *use* (application) of natural language, it is concluded that questions of *its use cannot be excluded from semantics.*

This approach, which combines in one theory the relativised (in relation to speakers of the language) doctrine of possible worlds with a game-theoretic interpretation of sentences of natural language, not only lays the foundation for systematic investigation of the logical behaviour of a class quantified expressions of natural language but also raises a number of questions relating to the *methodology* of its analysis in contemporary formal theories.

The inadequacy of this analysis is due to its end result being treated as a function of analysis of parts of some whole in accordance with 'Frege's principle'—both syntactically and on the semantic plane—and so is determined 'from the inside-outside' while the factor of context is always characterised in the *opposite* direction. A number of semantic ambiguities, including the *de dicto/de re* distinction, are resolvable when there is definite *additional, extralinguistic information.*

What is important in principle here, however, is that in the theories being examined the *feedback* of the context to linguistic expressions coming within its scope (which also resolves the ambiguity of the linguistic expression) is not provided for, rather than that the function of determining the ambiguity of the linguistic expression is ascribed to the context. In *that* sense both Frege's principle of analysis and the thesis of the recursiveness of the set of

grammatically correct sentences of natural language, the ascribing of logical form, *irrespective* of the context of the use of a linguistic expression, and the postulate of the *universality* of deep linguistic structures, seem questionable. In short, there are sufficient grounds for casting doubt on the relation of syntactic and semantic structures that they are given in modern formal theories of natural language as theories of the logical form of its expressions, and so to question the substantiation of the relevant analogy of natural and formal languages on presupposition of which this understandinfi of the relation of the syntactic and semantic aspects of this language is based.

It is of fundamental importance for the theory of coreference, which is based on employing the concepts of the semantics of possible worlds, to substantiate the *methods of identification*, or the methods of cross-identification, of objects that exist in different possible worlds. The complexity of the problem of establishing these methods naturally corresponds to the complexity of all the possible situations, including counterfactual ones, described by natural language. In the end, in order to analyse these situations, concepts are often resorted to that correspond to speakers' intuition only as an approximation. McCawley's example, well known in the literature, 'I dreamt I was Brigitte Bardot and that I kissed me', which is not amenable to analysis in terms of the coreference of the objects of the real world, is treated in terms of the semantics of possible worlds as describing a situation in which it is a matter of there being two of his doubles, or analogues, in the speakers 'dream worlds' (i.e. in worlds like that he dreams about), and these being analogues, moreover, in a different sense.[42] One of the speaker's doubles, is the one whose experience he shares in a given 'dream-world', the other, obviously, is his double in another respect. The problem is to establish the methods of identification of these objects, the more so that a breakup of one and the same object into several is sometimes presupposed in the other possible world.

True, the criteria by which speakers *in fact* make a cross-identification and decide whether or not objects belonging to different possible worlds are identical, are problematic-

al, since there are no clear structural properties of what called the 'world lines' linking the various 'manifestations', 'roles', 'doubles', or 'analogues' of one and the same object in different possible worlds. Hintikka treats the concept of the meaning of singular terms as a definite *individuating function* from possible worlds to their objects or individuals.[43] The identity of the individuals is understood in that connection as something establishable, not by means of certain absolute logical principles, but by a comparison of various possible worlds made by speakers by the principles of the continuality and similarity of the objects. The form of the continuality may be selected by different means, i.e. it does not eliminate speakers' choice of different 'world lines'.

It is supposed that speakers are constantly dealing in their actual conceptual and linguistic practice with at least two different systems of world lines, depending on whether they depend, when examining objects, on their *descriptive* (physical) or *perspective* (contextual) characteristics. One of these systems is correspondingly based on methods of descriptive identification that start mainly from the continuality of the objects in space and time, and the other on an identification of objects that consists in the same perceptual, or other directly cognisable, relations in various worlds with the given speaker, and is called *perceptual* identification.[44] Both the one and the other are treated 'as explications of Russell's epistemic dichotomy of *knowledge by description* and *knowledge by acquaintance*.[45]

Since the referents of connected variables must be objects identical in all the possible worlds concerned, the duality of the methods of cross-identification is reflected on the logical plane in a duality of the corresponding pairs of quantifiers. 'Ex', '(y)', are employed as descriptive quantifiers and '$\exists$ x' and 'Ay' as perceptual ones. On the intuitive plane the variables of the first pair cover ordinary physical objects, while the variables of the second pair cover perceptual objects characteristically individualised by their location in the speaker's perceptual field.

The difference between the methods of cross-identification in many natural languages are already manifested on the surface level and expressed by different types of lin-

guistic constructions. The logic of descriptive identification can thus be regarded as the logic, or theory of logical form, of complex, interrogative sentences containing, as the main verb, the epistemic verbs 'to know', 'to think', 'to understand', while the logic of cross-identification 'by acquaintance' is treated as the logic, or theory of logical form, of constructions of direct object with appropriate epistemic verbs.[46] The *de dicto/de re* distinction obviously passes through the distinction between cross-identification by description and by acquaintance; it belongs to both. Thus, although both the sentences 'John knows who the girl is that is standing in front of him' and 'John knows the girl standing in front of him' are *de re*, it *is* a matter of employing different criteria of identification in them, viz., descriptive and perspective.

As I noted above, one of the fundamental problems pertaining to the structure of 'world lines' is that of whether they can be divided, 'split up' during the transition from one world to its possible alternatives. An affirmative answer would mean that several 'manifestations' or 'doubles' of the object under study are assumed to exist in some of the alternative worlds, which would introduce ambiguity into both the understanding of the modus *de re*, and consequently the *de dicto/de re* distinction as well. One can therefore agree with Hintikka's viewpoint; what is regarded as division of 'world lines' is rather an indication that we are dealing with the functioning of different principles of cross-identification. The question of continuity or similarity as the basis of cross-identification depends, as further study has shown, on the type of intensional context in which the object liable to identification is regarded.[47] Namely: in *impersonal* modal contexts (such as, for example, 'Maybe my brother will resemble me, as I am now, more than I will resemble myself'), and also in *counterfactual situations* (as described in the sentence 'If John gave a big enough bribe to Senator X, he could manage Carswell' the principle of the continuity of the object and of the criteria of the descriptive identity of the object has priority; it is a matter of examining what we call 'objective' modalities that are not relativised in reference to what-

ever perspective of the examinatiaon, i.e. in contrast to *personalised* modalities such as propositional attitudes (see Ch. V).

Delimitation of the two aspects of the concept 'possible world' furthers theoretical substantiation of this approach: viz., that which is called 'the possible course of events' and that which is called '*the possible state of affairs*'. The latter can be treated autonomously, i.e. as not connected by any course of events whatsoever. Preference is given to considerations of continuity when an object is being examined in terms of the possible course of events, i.e. in terms of possible states of affairs connected by a definite course of events. When, however, the object is examined in terms of autonomous states of affairs that are not stages in a definite possible course of events, considerations of similarity figure as the basis of its cross-identification. In actual semantic practice a speaker is concerned, as a rule, with possible courses of events, although that may not be clearly expressed in the surface forms of the corresponding sentences.

There is thus justification for the conclusion that one of the most significant criteria of transworld comparison is provided by the *different principles of continuity* employed by speakers rather than by any doctrine of essentialism by which cross-identification is treated in terms of privileged attributes of the objects being studied. As Hintikka has remarked,

> you may of course propose to call these continuity properties 'essential attributes', but they are by any token a far cry of Aristotelian essentialism.[48]

What has been said leads to a consideration of knowledge or information on the basis of which the speakers of a language identify real or possible objects. From my point of view this information is part of what I call the speakers' 'conceptual systems'. It should correspondingly be a matter of deciding the problem of the identification of objects from the angle of a speaker's conceptual system in view of the definite concepts he has at his disposal about real or possible objects, in view of the appropriate information about them.

6. The Semantics of Singular Terms and the Individual Conceptual System

According to the approach advocated here, identification and differentiation of objects (real or possible) is carried out by the subject as the bearer of a definite conceptual system on the basis of the information he has at his disposal about the objects in question. This information comprises the subject's belief or knowledge about these objects and is fixed verbally by a definite description or a proper name. From this point of view a concept of an object that belongs to a definite conceptual system is the meaning of the singular term for a *definite speaker*. Such a concept-meaning defines an object as part of a universe of objects relativised in respect of a definite conceptual system, in contrast to the meaning of the singular term as postulated on some absolute, objectivist plane, on the plane of the 'semantics of language'. This meaning, always related to a definite conceptual system (which, properly speaking, is what determines the *intensional* nature of the meaning), is a criterion for identifying the object.

Consideration of the problematic of meaning as one of a speaker's assimilation of definite information helps us coordinate the meaning of a sentence with a speaker's knowledge of its truth-conditions as a criterion for establishing the truth-value of the sentence, and correspondingly for relating the meaning of a name with definite information as a criterion for identifying (recognising) an object. The relationship of meaning with knowledge of truth-conditions and not with truth-value explains why a speaker can understand a sentence without knowledge of its truth-value. In other words, he may or may not know that *p* (i.e. *what* is the truth-value of '*p*'), but in either case he must understand what '*p*' means. Similarly, understanding of the meaning of a name as a criterion for recognising its referent does not mean knowledge of the referent, i.e. does not presuppose acquaintance with it as a necessary condition.

Generally speaking, or from an external to a conceptual system point of view, the 'coincidence' of definite constituent concepts makes possible communication between speak-

ers as witnesses and participants of a definite shared social experience. The need for a reservation about this 'coincidence' is due (1) to the fact that such concept (like any other) does not exist *unlinked* with a definite conceptual system, i.e. unconnected with other concepts of the system that continually constitute it and reflect the speaker's definite experience (of different levels). (2) This 'coincidence' is regarded here on the *pragmatic* plane, i.e. from the standpoint of *the practice of the use of natural language* which satisfies aims of ordinary, scientific, or any other communication. In that respect the 'coincidence' is characterised by two factors: (a) by the use of a definite set of linguistic expressions that are *common* to the speakers, but fix a definite concept belonging to a *definite* conceptual system; and (b) by the fact that the rigour of the determination of this concept and in general the choice of adequate (exhaustive) parameters characterising the desired degree of rigour and determinacy of the concept, are always relative to the *context* of use of linguistic expressions. This means that a definite set of other parameters characterising the concept as belonging to a definite conceptual system, is simply abstracted, in the absence of a need to allow for them in the context under study.

Establishing of the identity of the referent on the inter-individual plan depends, when it is a matter of a real object, on both the set of characteristics ascribed to it and the possibility of verifying them (in this *specific* sense, that the neopositivist thesis of knowledge of meaning as knowledge of *the method of verification* of a sentence should be valuated to a limited aspect).

When it is a matter of a *possible object* assigned by a definite description, or rather by a given concept of the system, this object is what is defined, since it figures as the *object for the subject*. Understanding of a sentence about such an object does not call for knowledge of *who* is the referent of the corresponding singular term. In this sense the very fact of the use of a proper name in a certain sentence relating to the actual or a possible world, and treatment of it as such are sufficient in order to construct an argument about the object named by this name, and its sub-

sequent identification in the argument. A reference to an object does not necessarily presuppose knowledge of it as such. But that also does not mean that use of the name of an object does not necessarily mean reference to it (I do not have in mind here, of course, the instance when interpretation of a name in a definite conceptual system comes down purely to interpreting it as a linguistic entity or form). Otherwise an impression will be created that a contradictory situation has arisen. When I write, for instance, 'I am not, of course, referring to Wittgenstein (do not have him in mind)', I am *already*, thereby, referring to him.

In reply to a query about where I referred to Wittgenstein, it would be absurd to point to a sentence in which I say: 'I am not, of course, referring to Wittgenstein'. But there is no contradiction in that as long as we admit that the sentence concerned can be given at least the two following interpretations. The first presupposes the existence of a context and contains the idea that something (expressed in this context) does not refer to Wittgenstein. The other (most likely that which is meant or implied in the example cited) indicates the *possibility* of constructing a trivial, false statement by means of the natural language which is explicitly realised in the sentence 'I am not referring to an object when I refer to it'.

The construction of arguments about possible objects, and predication with respect to them depend first and foremost on the possibility of referring to them. Generally speaking, the intensional status of the concept of a possible object in a conceptual system is the same as the intensional status of the concept of a real object, formally: the status of a function constructed in a given conceptual system and having (or not having) as its value one or another referent depending on the state of affairs in the world. I have employed the expression 'generally speaking' because, in the case of knowledge of the existence of an object among the objects of the real world, that knowledge, like any other, has the status of a concept in a given conceptual system. In that case it is a matter both of the concept of a possible object and of a concept of its existence.

Thus, while the possibility of constructing the function

itself as a concept is determined by the conceptual system, the existence of a real object in the domain of values of the function depends exclusively on the *state of affairs in the world*. Knowledge of the latter means knowledge of whether the objects defined by such functions belong to the real world or only to some possible one. It means the construction of a special concept in the conceptual system under study, and equally knowledge that certain different intensional functions pose one and the same object (as in the case of true statements of identity, like 'Jonas's neighbour is Petras's brother', 'The morning star is the evening star').

One can say anything true or false about possible objects referred to and determined by a certain set of descriptions from the standpoint of a definite possible world described by means of natural language, or rather by means of concepts fixed by it (for example, that Hamlet was a Danish prince and not an English duke, that he killed Polonius, that he was not married, an so on). To give a name to a possible object similar to real objects means to refer to it as 'object-named-so-and-so', not in the real world but in a possible world, and to follow it through any of its transformations. In other words, to give a name means to have the *minimum* but sufficient condition at one's disposal for 'evoking' (turning or drawing attention to) an 'object-named-so-and-so', and to reidentify it in the subsequent discourse. One of conventional concept acquired during mastery of a language is that names are the *names of objects* (for example, 'Jonas' is the name of an object called 'Jonas'). The same can be said as well about those *'neutral'* names, or quasi-names, that are *indexicals*. The indexical 'I', for instance, can be considered a code-name for the concept 'the person speaking' or the 'first person' and the indexical 'you' the code-name for the concept 'the individual being spoken with', the 'second person', etc. These concepts are the *minimum but necessarily mediating* (between expressions and objects) intensional functions that are immanent in the use of proper names and indexicals. The latter therefore can no longer be treated as *directly indicating* the appropriate objects.

On this view statement of the dichotomy of the referential/attributive use of definite descriptions can itself be treated as an absolutising of the difference between two extreme points of the continuum ('obviousness') of the givenness of the object, i.e. when one has in mind a *definite object* (referential case) and when only a *certain description* is known (attributive case). Employing Barbara Partee's example, for instance, one may imagine a detective tracking down a criminal. The first gathers a more and more detailed description of the latter during investigation of the circumstances of the case.[49] But it is not at all simple to determine at *what moment* the detective, of whom one can say that he is occupied in searching for a man who did such-and-such, ceases to look for *anyone* who did such-and-such and starts to look for *a quite definite* individual.

A definite description really performs a dual function in such cases: it *fixes the referent* and *gives the meaning of the proper name* we attribute to it. Even when I say 'The President of the USA in 1982 could not have been the President of the USA in 1982', the description 'The President of the USA in 1982' fixes one of the components known to me of the concept of Ronald Reagan and at the same time refers to a definite object, while the rest of the sentence under study says that the object that is the President of the USA in 1982 could not be it, i.e. that my knowledge of Ronald Reagan might be different with a different course of events.

Such an analysis of descriptions oriented to interpreting them in definite conceptual systems, and consequently allowing for the latter in a definite context of its use, provides grounds both for singling out the status itself of the *de dicto/de re,* attributive/referential, and narrow/wide scope distinctions, for defining their relation and so clarifying the theoretical inconsistency in the understanding of these relations. In spite of identification of the *de re* case with the referential, and the *de dicto* with the attributive discussed by many investigators (including Hintikka), Kripke[50] and other writers consider this identification unsubstantiated, and likewise the attempt to express the *de dicto/de re* difference by means of Russell's syntactic concept of the

scope of description (which gets a corresponding interpretation, as we have seen, in the semantics of possible worlds).

According to Kripke the *de re* use is not identifiable with either the referential or the attributive ones. When using the sentence 'John believes that the richest debutante in town will marry him' *de dicto*, for instance, we have in mind the definite content of John's belief, namely that the town's richest debutante will become his wife. Such an understanding once served Frege as an excuse for treating the meaning of a description as the referent of the description placed in a belief context, and the corresponding proposition, a thought of the subject of belief, as the *object* of the belief. When we use the same sentence *de re*, we have in mind that John is thinking about the girl who (actually) is the richest in town and that she will become his wife. But the same sentence can be expressed by a person who believes (let us assume, mistakenly) that there is not a single debutante in the town; this person will then not speak of the richest debutante, of course, even in an attributive interpretation. Referential use in turn is held to be not identical to the *de re* case. Thus, in the sentence 'Smith's murderer, *whoever he may be*, is known to the police, but they are not saying' or 'The police know concerning Smith's murderer, *whoever he is*, that he committed the murder, but they are not saying who he is', the description 'Smith's murderer' is used attributively, but *de re*.

Examination of the *de dicto*/*de re* dichotomy is employed in connection with analysis of the problem of the substitutivity of singular terms in belief sentences (see Ch. V) so as to substantiate the *de re* character of perceptual knowledge, the epistemic fundamentality of *de re* modalities, and their irreducibility to *de dicto* modalities.[51] The description 'his neighbour' in the sentence 'John believes his neighbour is a musician' can be substituted *de re* for any other singular term referring to the same object. Ascription of this attitude of belief to John means to relate John *directly to that object* without attribution of any description that he might denote this object by.

With *de dicto* interpretation, however, such a substitution is impracticable since it does not allow for the way John

singles out the object concerned from others (i.e. the definite description he employs to refer to this object). It is logically necessary, of course, not to propose a transition. Naturally, a transition from a sentence containing a *de dicto* interpreted belief attitude to a sentence asserting the existence of the object denoted by the singular term placed into a belief context is not considered to be logically necessary.

A *de re* attitude is considered *perceptual* which contains an indexical element that relates the subject of the attitude to the context perceived by him; this element is ascribed even to proper names. It is suggested that a direct relation of the subject to such a context is displayed in his incapacity to describe (conceptualise) the object of the attitude. The existence of a *de re* orientation is treated as a *necessary condition of natural language* and a *condition of empirical knowledge of the world*. This epistemic status of a *de re* attitude obliges it to be treated as irreducible to *de dicto*.

Analysis of the possible contexts of the use of a description in which the *de dicto*/*de re* dichotomy of the correspondingly attributive/referential use is employed in order to characterise the difference of these uses indicates that one can single out different aspects in these dichotomies that are differently employed in the conceptions of reference. In my view, for instance, the *de dicto* modus embraces two ideas: (1) *plurality* of a reference made by a description; and (2) reference to the *content* as a definite intensional entity (the speaker's *thought, meaning, concept,* etc.), expressed by a singular term, in particular by a description. Both of these aspects are also implied, in my view, in attributive use, i.e. when only those objects come under the description concerned that satisfy the conditions formulated in it, but it is not known what precisely (whatever it may be) is the bearer of the properties expressed by the description.

A *de re* understanding, in turn, includes (1) an idea of reference to a *well-defined* object and (2) an idea of an object-referent of the description *belonging* to the *actual world* (in other words a corresponding presupposition of the existence of the object in the real world). It follows from this that the *de dicto* modus corresponds to attributive

use; it embraces both the idea of plurality of reference and the idea of content of reference. By the latter aspect of *de dicto* use can be understood reference not only to a definite, intensional entity but also (through it) to a *welldefined* object determined by it that may not exist in the real world because of the relatedness of this entity to a definite speaker, which does not, of course, rule out the possibility of its existence in other possible worlds.

In this interpretation this *de dicto aspect* corresponds to the aspects of *referential use* that I have distinguished. In terms of Hintikka's world lines, it is a matter of denoting a definite object by means of its world line running through a definite set of possible worlds and having as its value one and the same object in all of these worlds, and possibly, but not necessarily, in the real world. When this object does not exist in the real world, one then says that the corresponding belief attitude is directed to a specific, definite, but non-existent object.[52] *De re* is narrower than referential use: (1) the latter contains an idea of a definite object (and in that respect it is opposed to the plural aspect of *de dicto* use); (2) it is not necessarily tied to the real world; (3) in contrast to *de re* it assumes the possibility of using a description which is inadequate in respect of it.

The necessity of taking into account of the information contained in speakers' individual conceptual systems when defining the function in which a description is used, consists first of all in our having to allow for *who* is using the description, i.e. for what individual conceptual system this description belongs to—the speaker's or a second or third person's, or for what can be called the 'objective conceptual system' as an *abstraction from the individual conceptual systems* that accumulates the objective information about the world contained in them (see Ch. V, § 6). The opposition of the second *de dicto* aspect I have distinguished to the second *de re* aspect can also be explained by the non-equivalence of the information associated with a definite description contained in the individiual conceptual systems and in the 'objective conceptual system'. It is a matter of when reference is made by means of a description to a definite intensional function related to a definite conceptual

system, and when information relating to the 'objective conceptual system' is ascribed to the description. The first case implies not just relating the description to a definite intensional function (interpreted by Frege and many of his today's followers as realising, by a description placed into an indirect context, reference to the *meaning* in contrast to ordinary direct contexts in which the description is treated as referring to an *object* that satisfies its meaning), but at the same time referring to the *object* given by this function. In the indirect context, as in the direct one, we can speak of reference to a world of objects; only it is then a matter of sets of objects related to definite conceptual systems. In such contexts, as Castañeda aptly put it, the reference of singular terms is 'transparent';[53] linguistic expressions *do not lose* their ordinary reference function; just to trace the path of this reference to the objects needs allowance for a *set* of conceptual systems.

An object assigned by an intensional function that belongs to a definite individual conceptual system may not be identical with an object assigned by an analogue of this function belonging to the 'objective conceptual system', although one and the same description is used in both cases. This difference of interpretation of one and the same description is also reflected, in my view, in Russell's dichotomy of the *narrow* and wide scope of description. As for the difference between the first *de dicto* aspect I have distinguished (the aspect of plurality of reference), and the first *de re* aspect (that of reference to a definite object), I consider it necessary, while recognising the naturalness of this difference in the sense that one and the same intensional function may pick out different objects or one and the same object, in different possible worlds, (1) to supplement understanding of it by the considerations expressed above about the possibility of passing from *de dicto* (in an attributive interpretation) to *de re* (in a referential interpretation) and their possible final coincidence; (2) to indicate the advantage of an understanding of the referential use of description broader than *de re* and more adequate to the use of natural language. This advantage is that the understanding mentioned provides a chance of employing

descriptions *inadequate* to an object in order to refer to it, and at the same time does not necessarily treat as definite only objects existing in the actual world.

From my point of view, description can thus serve simultaneously both to refer—the *referential* plane—to a *definite object* (in the case of the plural understanding of *de dicto* to *different* objects existing in different possible worlds), and to fix the *meaning* or concept—the *intensional* plane—of the description ascribed by a speaker or of a name related with it.

The ascribing of a name to a possible object, as in a situation with a real object, performs the function of reference to it (as to *an object-named-so-and-so)* in a *possible world* but not in the real world. A clear understanding of this referential function of a name provides an explanation in this case (as in the case with real objects) of the relation of the name of the object concerned to the description by which this object is defined. The referential function of a name makes it possible to examine a given possible object in various alternative worlds in relation to the given possible world, alternatives in which the object referred to by the name is ascribed descriptions incompatible with those by which it was characterised in the given possible world. (One can speak, for instance, about Hamlet as an object named by Shakespeare, that he might not have killed Polonius, might have married Ophelia, and had many children by her, and so on.)

The possibility of such an interpretation shows that a concept as the meaning of a name may be altered when passing from one world to another. But even in the case of the most radical change in the meaning of a name (as, for example, in fairy tales in which different transformations of objects occur), the name retains a fixed object during the passage from one possible world to another (in a sense relevant for the usage of the natural language but not in some absolute, essentialist sense of identity). (Because of this property of a proper name we can understand Franz Kafka's story *The Insect* the hero of which, Gregor Zamza, once discovered on waking in the morning that *he* had been turned into an insect.)

The treatment of a description linked with a definite name, as the constituent of the name's meaning for a definite speaker as the concept of an object called so-and-so, does not mean (in view of the name's referential function), assertion of the *synonymity* (on the absolute plane, i.e. the plane of the 'semantics of language') of the name and the description. If the name similarly to the description is treated not only from the angle of the referential function but also as *denoting* a definite *concept* of a given conceptual system, it is obviously trivially synonymous with the set of descriptions denoted by the same concept. The statement of identity made by means of name and description is then *analytical for a definite speaker.* The name 'Hamlet' thus relates referentially to an object about which it can be said that he murdered Polonius and that he might not have killed him. Intensionally the name 'Hamlet' is related to a definite concept that contains information that Hamlet killed Polonius and everything that is said in Shakespeare's play on condition that the speaker has *precisely this* information at his disposal. But this name may also refer to another concept, depending on the information the speaker has of the object called 'Hamlet', depending on what possible worlds the speaker is regarding him in.

The referential function of a name invariably presupposes a definite *intensional function* (in the extreme, or minimal case, as just noted, this function may be trivial, like 'an object-named-so-and-so') as a criterion for subsequent identification of the object. Then relationship of names (for example, in a definite text) and in general of singular terms, as referring to one and the same object, has the structure of 'an anaphoric chain',[54] i.e. a sequence of singular terms such that each successive element is treated as referring to the same object as the preceding element of the chain. The reference of the succeeding element of the chain is then treated as depending on the reference of the element preceding it. In more complicated cases it is a matter of mutual crossing of different 'anaphoric chains', which presupposes a speaker's capacity as *interpreter* of these chains to trace the structure of each of them and to relate

the term to the *correct* 'anaphoric chain'. The establishing of such anaphoric chains, formed of names, descriptions, and indexicals, is a necessary condition for *understanding* the corresponding texts and, as follows from what has been said, presupposes understanding of the definite context of the use of the relevant term.

Hence it is clear that the referential function and anaphoric relations of linguistic expressions cannot be established in the context of sentences *taken separately*. Examination of these isolated sentences as an object of analysis is therefore an abstraction from larger structures: groups of sentences, whole texts, etc. That, of course, cannot help being reflected as well in evaluation of the adequacy of the determination of the logical form of separately taken sentences.

At the same time a name fixes in our memory the *changes* that the object designated by a given name may undergo, linking one concept with different other ones associated with it as different intensional functions, different perspectives of regarding the object. It is possible, moreover, that a speaker assimilates such intensional functions without knowing that some of them refer to *one and the same object* (that for example, the expressions 'the morning star' and 'the evening star' designate one and the same object, viz., the planet Venus). Mastery of this knowledge is the construction of a *special* concept in the given conceptual system. I see in that the basis for relating statements of identity made by means of the appropriate names to *epistemic* modalities, and not to metaphysical ones as Kripke suggests.

Names, being a means of fixing definite concepts related with objects, and only through them being a means of referring to them, have an ideal property from the angle of the *pragmatics of communication;* being neutral, so to speak, in relation to the different concepts related to it both by one and the same speaker and by different speakers, they make it possible to refer to the objects designated by them without having, in each case of their use, to agree about the content of the concepts coded by them,[55] and the various descriptions related to them. All the more so that

it is more important in many cases to fix the referent of the name than to express the mode by which this referent is thought about, i.e. to express the meaning attributed to the name by the speaker.

Names thus not only help link together the different concepts referred to one and the same object by one and the same speaker, but also make it possible to link the different cognitive experience of different speakers as *hypothetically* related to the same objects of the world, in other words, to link together the various thoughts of different speakers about the *hypothetically* same objects. The existence of such a *supposition* in conceptual systems is a pragmatic prerequisite of communication by bearers of these systems. In that sense one can say that a name performs a causal role; its use 'evokes' or 'stimulates' definite concepts in definite conceptual systems and, by correlating them as 'selecting' the hypothetically same objects on the interindividual plane, makes speakers' communication possible.

What has been said refers both to names in the proper sense of the word and to *indexicals* performing a function of reference to objects analogous to names, i.e. to 'quasinames' like 'this', 'here', 'I', 'now', etc. The making of a reference by means of these quasinames presupposes not only mastery of the meaning ('fixed meaning') of the corresponding indexical (from my angle, a construction of a definite concept in a given conceptual system), but also perception of the context of the reference as a singling out of definite objects in it, interpretation of gestures being made in the context, etc. E.g. assimilation of the meaning of the demonstrative 'this' can be treated as construction of a concept of an object that exists in the subject's field of perception. Its use correspondingly signifies the subject's direction of thought (which is otherwise defined as *intentionality*) to a definite object perceived by him.[56]

Mastery of the meaning as the fixed meaning of 'I' can be regarded as construction of a concept about the person speaking, the self-perceiving subject; correspondingly his usage signifies the directivity of his thought toward himself.[57] Mastery of the expression 'here' can be regarded as construction of a concept of the place perceived by the

subject (with possible different interpretations of the 'scope' of the place depending on the context); and it is correspondingly a matter of the directivity of the subject's thought to a definite place, and so on. *Indexical meanings* (called *'characters'*,[58] *'roles'*,[59] *'linguistic meanings'*[60] in other works or simply 'meanings' as by Montague and Cresswell) are the constant mental content present in the various contexts in which indexicals are used by the same or different speakers, which are then characterised by the same *state of consciousness* or *belief*. It is then said of two speakers, who utter, for example, 'I', that they share the same state of belief but are referring to different objects (in view of the different contexts of the use of 'I').[61]

At the same time reference to an object by means of indexicals presupposes singling out of the object as representing itself in a definite way to the subject perceiving it, i.e. construction of a concept of the object in a concrete conceptual system, and construction of a definite *'descriptive'* sense (meaning) related to the given indexical in the concrete context of its use. It is not obligatory, of course, for the speaker to be capable of formulating and expressing such a descriptive meaning determining the object. The referent of the indexical, from the formal standpoint, is then the meaning (value) of the intensional function that is the result of correlating the 'constant' and 'descriptive' meanings. In view of that a statement of identity, expressed for example by the sentence 'This is identical with that' and made in a definite context may be taken as informative, in spite of the classic understanding.

Indexicals, like names, connect together various intensional functions related to them, so making it possible to correlate different elements not only of the real history of the indexical's object-referent, but also of its various possible histories, in which (from my point of view) the 'rigidity' of the reference inherent in both real names and quasinames, is manifested. Indexicals employed in a definite context retain their referent-object during the transition from one world to another.

When a referential function is attributed to indexicals in

the structure of a predication (for example, 'This is red', 'I am the author of this book'), the perception of the objects indicated by the indexicals manifested in the construction of definite concepts as 'descriptive' meanings, can be represented by a definite, verbally formulated description. But the latter cannot be treated as *identical* with the content of the perception. It is a more or less adequate means of *expressing* the perception and, as such, a possible means of *constructing* concepts, and through them, a possible means of representing or *defining* the objects.

The impossibility of exhausting the content of the perception of oneself when using the indexical 'I' in a predicate structure is a reason for attributing an *essentially indexical* nature to this indexical, i.e. a character irreducible to any description.[62] E.g. many individuals may share a state of belief expressed in the form 'I got lost', but only I can be the subject and object of the state 'I got lost' expressed by me. It is therefore impracticable to replace 'I' in some description defining me, however detailed it is as my idea of myself. Such a substitution would require explanation of the identity of the description and the indexical, which is impossible without using the same indexical, i.e. it would lead to *repetition* and not elimination of the indexical.

It follows from this that the *referential* function of an object is inseparable from the function of its *characterization*, the possibility of referring to an object presupposes the possibility of constructing a definite concept of it. But while the characterising function is represented *explicitly* in the case of a description in the referring expression itself, in the case of names and quasinames this function is not represented explicitly. *It is contained in the concepts of a conceptual system that interprets both these expressions and the situation itself of their use.* In other words, when we use indexicals as referring terms in predicative structures, we do not hang the predicate on a 'bare' object lacking any qualities whatsoever. Rather, on the contrary, such structures are to some extent surplus or excessive (not on the surface, linguistic level, but on the semantic level, i.e. the level of the meanings ascribed to the indexicals); in re-

ferring to such an object we are *already* characterising it in some way, and singling it out from other objects.

This happens, for example, when I point to a red object and say 'This is red'. A 'pure' direct reference is the same kind of fiction as the existence of objects that have no qualities whatsoever. In other words, an expression contained in a predicate position may be regarded, in particular, as what has already been attributed to the indexical by the person using it, i.e. by the person speaking (from the standpoint of the hearer the expression serves, in addition, to define a possible extension of the indexical). In any case, we cannot avoid language in order *to express* reference; we have to fix the object of our consideration linguistically in order to say something about it. That function is performed by referentially used indexicals: their pragmatic convenience consists just in the implicitness (from the linguistic angle) of the *descriptive support* correlated with them. To that one must add that an expression used predicatively may also represent new information relative to that coded by the indexical.

Neglect of the conceptual system in which indexicals are interpreted, which presupposes correlation of concepts representing constant and descriptive meaning of the indexicals employed (irrespective of the context), and the unclarity of the indexicals' descriptive, qualitative support (in contrast to standard cases of the use of definite descriptions as reference terms) incline some writers to regard indexical referring as simply defined by the context of the indexical's use. That leads to treatment of indexicals as *directly* referring expressions of natural language, i.e. without any mental, intensional mediation. Russell called this direct cognitive experience 'acquaintance': in it the object is presented to the subject *directly* and is given in the direct context of the experience.

In other studies belonging to the 'post-classical period' of linguistic philosophy, and laying claim to explain the mechanism of reference and predication,[63] expressions like 'This is F' are treated as belonging to ('attached') directly to a perceptual, existent situation. It is suggested that by such expressions one only registers the existence of changes

in the *perceptual* situation, when the individual (regarded then as a definite 'recording' instrument) 'simply reacts' in a definite verbal way to the existing situation. Expressions of this 'registering' language are denied the function of reference, and consequently, too, the function of identifying objects—there is no possibility of making statements in this language.

The indexical in these expressions is only a signal of belonging to the situation; it is not treated as indicating the 'place' of application of the predicate. The correctness of the use of the 'quasipredicates' of this language is checked directly; the criterion for that is use of the predicate in situations of the same type as the situation in which it was defined, i.e. in situations of learning (mastery). According to this approach real predicates, in contrast to 'quasipredicates' are not applied directly to situations but to situations indicated by means of *genuine* singular terms that refer to definite objects as the 'places' of application of predicates. A supplementary, characterising role is thus assigned to predicates in the body of a whole sentence in which it correlates with singular terms performing a referential function. From that angle indirect use of definite linguistic means of applying predicates makes their use situationally independent, determining the possibility of a non-perceptual relation to reality, while the transition from 'quasipredicates' to real predicates itself marks assimilation of natural language as a means of thinking and articulation of reality.

This 'explanation' of the structure of reference does not stand up to criticism. (1) The treatment of the use of expressions containing indexicals (like 'This is F') as lacking a referential function is not substantiated either logically or empirically. Meaningful use of such expressions, like the understanding of them, presupposes the individual's singling out of definite objects as objects of his perception, which (as I have shown above) already gives these objects their characterization. Assimilation (introduction) of natural language signifies relating demarcations made by the individual in the world with a nomenclature adopted in a definite linguistic society, which has extremely important conse-

quences in view of that function of natural language which I have called 'manipulative' and which belongs to the construction of definite conceptual structures in a given individual conceptual system by means of natural language, and leads, so to say, to 'generalisation' of the content of individual conceptual systems.

(2) The referential function of singular terms is *simply declared* in such conceptions and is not explained: it is simply asserted that it is precisely with mastery of singular terms as signifying the 'places' of application of predicates, that real use of natural language, not confined to the situation, begins, but it is not explained *how it is possible* to understand (assimilate) singular terms, and to use them meaningfully. One cannot expect such an explanation through definition of the link between singular terms and constructions like 'This is F'; the indexical in them is not ascribed a referential function at all. But a name can be introduced about any object to which reference is being made: a typical case of this is reference by means of the use of indexicals, which signifies (this must be stressed once more) the construction, along with '*indexicals meaning*', of a definite '*descriptive meaning*' assigned to the object treated (singled out in a definite context).[64]

Finally, an indexical element is inherent in the use of descriptions themselves that contain in their structure not only predicates, proper names, but also indexicals (for example, 'this pupil of Plato'). However the question of the semantic status of these constituent descriptions remains unclear in the approach under consideration. The conceptions embraced in a scheme constituted by two categories (natural language and its usage) are unable to propose a constructive alternative to the classical approaches (Platonic and nominalist) criticised by them. The attempts peculiar to these conceptions to explain a capacity for meaningful use of predicates by reference to the existence in the world of what are called 'natural classes' of objects, which are treated as a necessary condition of ability to think and speak about the world, cannot yield the desired result, because the 'natural classes' themselves are regarded as comprehensible exclusively through use of natural language, or

rather through use of repeatedly applied predicates. An obvious result of these attempts is a circular explanation. The use of predicates, names, and indexicals, true, is use of language, but it is no less true that language is not an apriori condition of cognition of the world, and interpretation of its expressions takes place only in speakers' conceptual systems, which are a *sine qua non* of mastery and meaningful use of the verbal symbolics and at the same time an object of a further construction by means of the natural language.

As regards the semantic status and communicative function of description, it is clear that it need not necessarily be the sole form of identifying the object under consideration (this identification is effected as a rule within a definite *context* facilitating it). Description serves to fix an object characterised in such-and-such a way; different combinations of referential and intensional functions are possible with all this. That any set of intensional characteristics can be involved in combination with the referential function of a name as the referential basis for (subsequent) consideration of the so-and-so-characterised object in other intensional roles, from the standpoint of other intensional functions. E.g., characterising an object named 'Hamlet' as Prince of Denmark, for instance, can serve as the referential basis for considering him (*Hamlet-as-Prince-of-Denmark*) in other intensional roles then proposed by Shakespeare, for example, as a person who (in some possible world) did not kill Polonius, married Ophelia, etc.

It is by relying on information that the speaker has at his disposal about some object in his conceptual system (excluding the case, of course, of a deliberate lie), that he can successfully refer to the object even when using an *incorrect* description (one inadequate to the object), if and only if this description fixes some set of characteristics that coincide sufficiently (in the sense considered above) with characteristics that adequately fix the object and are ascribed to it by other speakers of the language in this concrete situation (context) of the use of the description. In another case this set of characteristics may be minimal or even empty (i.e. it is not at all necessary that adequate character-

istics prevail over inadequate ones), if the context of the use of the description annulls the referential effect of inadequate characteristics and promotes realisation of the reference.

One can imagine a situation, for instance, in which someone who is in the far corner of a room points to a person sitting at a piano and says: 'The hostess plays beautifully'. We may assume that the rest of those present know that the person at the piano is not the hostess, and not even a girl, but a young man that our subject has mistaken for a girl because of his long hair. This situation leaves no doubt as to *what* referent is ascribed to the expression 'the hostess' by the *other* speakers of the language present.

Even when the description itself contains nothing that would relevantly correspond to the object in question, the context of its use itself, including other people as bearers of definite conceptual systems, can thus promote or even ensure achievement of its referential effect. In the example above, the words of the speaker 'plays beautifully' by which he characterises the referentially indicated object, refer, of course, to the relevant aspects of this context together with the other factors, i.e. aspects relating to singling out the object referentially named by the inadequate description. This description serves to draw the attention (thought) of other speakers of the language to a definite object, or as a *signal to look for the object*. Other expressions used about the object also serve as such a signal, and when there is not an object satisfying the description, the search for the object is further directed by other predicates related to it (in my example, by the predicate 'plays beautifully'). Finding an object that satisfies the predicate concerned means filling the place (similar to filling the place in a propositional function) that was referred to *(left empty)* by the inadequate description.

This *strategy of looking for and finding the object* underlies that linguistic practice when an object is obviously referred to by an inadequate description, i.e. when the speaker is himself aware of the inadequacy of the description he has employed but counts on the context of its use, and people as part of this context, correcting and furth-

ering achievement of the referential effect. Linguistic expressions consequently do not refer by themselves; achievement of the referential effect is not determined solely by the 'semantics of the expression'; it presupposes allowance for speakers of the language as bearers of conceptual systems, wherein these expressions are interpreted, and as participants in the pragmatic context of their use interpreted too in these systems. To abstract these factors, we would have to suppose in general that proper names, for example ('John', 'Jean', 'Jonas', etc.) are common nouns in view of the indexicality inherent in them.

Such a relativisation of the concept of meaning which has as its ontological consequence relativisation of the concept of the universe of objects in relation to a definite conceptual system, can be compared with the difference drawn in contemporary logico-philosophical studies of natural language between the *pragmatic* and *semantic* aspects of language. The point concerns the difference on the intensional plane between the *meaning* of a sentence—as a function from conceptual factors to propositions—and the *sense* of a sentence, i.e. of a proposition as a function from possible worlds to truth-values. In this case we would have to differentiate: (1) the *meaning* of a sentence; (2) the *proposition,* or sense, *for the speaker*; and (3) the *proposition,* or sense, *for the hearer.* In the example proposed by Bengt Hansson,[65] John always mixes up the names of Bill's wife Susan and Bill's sister Sue. Bill knows that, so when John says: 'I hope Sue is getting better', he knows that John is speaking of his wife. In this case both the proposition uttered by John and the proposition understood by Bill are *objectively* that John hopes that Susan is getting better, but neither of them is identical to the *meaning* of the sentence used to express this proposition.

In a similar study Kripke recognised the need to differentiate what he called 'semantic reference' from 'speaker's reference'.[66] By the former he meant what the speaker's words *signified*, and by the latter what (according to him) the speaker *had in mind* when employing these words in a definite situation. This covered the speaker's *intentions* and various parameters of the *context* of their use. By speaker's

reference was then understood the object that the speaker, according to Kripke, wanted or intended to speak about and that was thought by the speaker to satisfy the condition of being the semantic reference of the expression employed by the speaker. Kripke interpreted examples as follows, in terms of this distinction: 'The man drinking champagne is so-and-so' (in a situation in which this sentence refers to an individual who is not *in fact* drinking champagne, which the speaker does not know, but who is *in fact* 'so-and-so'); 'Her husband is very attentive to her' (in a situation in which the speaker is referring to a woman with whom the individual he has taken for her husband, though he is not, is flirting); 'Jones is raking leaves' (in a situation in which the speaker takes Smith, who in fact is raking leaves, for Jones, because of the distance), and so on.

Because the semantic referents of singular terms are objects that *in fact* or *objectively*, i.e. according to the generally accepted linguistic nomenclature in a given society, correspond to them (satisfy these terms or are referents of corresponding terms), the sentences quoted must be assumed to be false from the standpoint of semantic reference, i.e. according to the accepted nomenclature, which satisfies Russell's theory of definite descriptions.

But from the standpoint of *speaker's reference*, which presumes allowance for the pragmatic factor of the use of the expression, although the referents do not correspond to the singular terms employed, the context of use may make it possible to achieve the referential effect and consequently perform the function of a predication. The speaker's awareness that his reference does not correspond to the semantic reference must, according to Kripke, lead him to correct his mistake; effective communication presupposes coincidence of semantic reference and speaker's reference. But this requirement, as argued above, is only realisable in conditions of *ideal* communication, which is characterised by all speakers' acceptance of one and the same absolute 'semantics of language'.

Furthermore, the need to explain a reference made by an inadequate expression, and at the same time enthusiasm for the same absolute 'semantics of language', and failure to

recognise the significance of the conceptual-system factor on the basis of which speakers make references to objects of the world and identify them, compelled Kripke to consider as speaker's referents objects which *were not such* from the angle of the speaker's conceptual system. In the example quoted above, for instance, it is Jones, and not Smith, as Kripke suggests, who is the referent of the name 'Jones' used by the speaker, i.e. the person the speaker *has in mind*, although it is Smith to whom the predicate 'is raking leaves' relates from the objective point of view, i.e. from the angle of what I have called the construct of 'an objective conceptual system' containing information about the real state of affairs in the world and which is an abstraction from individual conceptual systems. It is with this construct that theories of the 'semantics of language' are concerned. However, as I am convinced, the phenomenon of reference is not explained, when an inadequate expression is employed, by what the speaker *should* have had in mind in order to make reference. This phenomenon is explained by the fact that the object to which the predicate concerned refers is identified in the situation being considered, i.e. from the angle of the speaker's conceptual system, with the object he has in mind *in fact*.

My analysis thus demonstrates once more that, for all the possible diversity of criteria of identification of objects, the basis for such identification, and also the determination of the content of a reference to objects made by means of linguistic expressions, is the information contained in concrete conceptual systems as parts of a definite context of the use of the linguistic expressions. It is reference to this kind of information, too, that provides the necessary premiss, as we have seen, for tackling two other fundamental problems of contemporary logico-philosophical analysis of natural language, viz. the establishing of criteria of the meaningfulness of linguistic expressions, and the problem of analysing the relationship of belief and knowledge.

Notes to Chapter III

[1] Gottlob Frege. *On Sense and Reference.*

[2] For example, '"The round square does not exist". It seems

plain that this is a true proposition, yet we cannot regard it as denying the existence of a certain object called "the round square". For if there were such an object, it would exist; we cannot first assume that there is a certain object, and then proceed to deny that there is such an object.' (A. N. Whitehead and Bertrand Russell. *Op.cit.*, p. 66.)

[3] Bertrand Russell. Descriptions. *Art. cit.*, p. 102.

[4] Bertrand Russell. *Human Knowledge. Its Scope and Limits*, p. 319.

[5] Bertrand Russell. On Denoting. *Art. cit.*, p. 52.

[6] A. F. Smullyan. Modality and Description.

[7] Ruth Barcan Marcus. Modalities and Intensional Language.

[8] 'Whenever /Whitehead and Russel wrote/ the grammatical subject of a proposition can be supposed not to exist without rendering the proposition meaningless, it is plain that the grammatical subject is not a proper name, i.e. not a name directly representing some object (*Op. cit.*, p. 66).

[9] Alexius von Meinong. The Theory of Objects.

[10] P. F. Strawson. On referring; *idem. Introduction to Logical Theory; idem. Individuals. An Essay in Descriptive Metaphysics;* idem. *Identifying reference and truth-values.*

[11] P. F. Strawson. *Introduction to Logical Theory*, pp. 173-175.

[12] P. F. Strawson. Identifying Reference and Truth-values; *idem.* Entity and Identity.

[13] Keith S. Donnellan. Reference and Definite Descriptions; *idem.* Proper names and identifying Descriptions; *idem.* Speaker reference, Descriptions, and anaphora.

[14] John Stuart Mill. *A System of Logic.*

[15] This doctrine also includes Quine's proposal to replace names by descriptions, which are then eliminated (in accordance with the procedure of contextual definitions proposed by Russell) in quantified expression of first order logic (see W.V.O. Quine. *Methods of Logic*). But Quine put this formalising of names forward as a possible 'reglamentation' of natural language, pursuing certain *deductive* ends, rather than as a theory of reference for names.

[16] John R. Searle. *Speech Acts.*

[17] Saul A. Kripke. Naming and Necessity. *Art. cit.*, p. 301.

[18] Similarly the definite description of 'the number of planets' is treated as a non-rigid designator as regards the designator 'nine' (in this case of a name); the number of planets could be different than it is in fact, but nine is nine in any circumstances.

[19] Saul A. Kripke. *Art. cit.*, p. 276.

[20] David Lewis. Counterpart Theory and Quantified Modal Logic.

[21] Saul A. Kripke. *Art. cit.*, p. 273.

[22] This idea of Smullyan's (expressed in 'Modality and description') is a development of Russell's idea about the ambiguity generated by empty definite descriptions.

[23] Leonard Linsky. *Names and Descriptions*, pp. 52-53.

[24] Equivalence of the *de dicto* and *de re* interpretations is put forward as a necessary and sufficient conditions for a designator to be considered rigid. Formally:
$\Box [D]\ F(D) \rightleftharpoons [D]\ F(D)$, in which D is a non-specific designator, D is the operator of the domain of the designator, and $F(D)$ is an atomic sentence.

[25] S. A. Kripke. *Art. cit.*

[26] Jerrold J. Katz. Logic and language. *Op. cit.*, p. 104.

[27] *Ibid.*

[28] Jerrold J. Katz. A Proper Theory of Names.

[29] Hilary Putnam. The Meaning of 'Meaning'.

[30] Jerrold J. Katz. The Theory of Semantic Representation; *idem.* The Neoclassical Theory of Reference.

[31] See the studies by H. P. Grise 'Utterer's Meaning and Intensions' and by J. R. Searle 'The Background of Meaning'.

[32] Barbara Hall Partee. Opacity, Coreference, and Pronouns.

[33] See: Charles J. Fillmore. On the Syntax of Proverbs.

[34] Richard Montague. The Proper treatment of Quantification in Ordinary English.

[35] J. J. Hintikka. Grammar and Logic: Some Borderline Problems.

[36] Esa Saarinen. Backwards-looking Operators in Tense Logic and in Natural Language; *idem.* Intentional Identity Interpreted: a Case Study of the Relations Among Quantifiers, Pronouns, and Propositional Attitudes.

[37] In Hintikka's understanding 'an existential quantifier involves inextricably two apparently different ideas or dimensions: existence in some particular world and identity in several different worlds'. (J. J. Hintikka. *The Intensions of Intentionality and Other New Models for Modalities,* p. 124).

[38] J. J. Hintikka. Grammar and logic.

[39] Ludwig Wittgenstein. *Philosophical Investigations.*

[40] J. J. Hintikka. *Logic, Language-games ; and Information* idem. Language-games.

[41] See: Kuno Lorenz. *Elemente der Sprachkritik.*

[42] The conception of analogues counterfactually defined by a relation of similarity to really existing objects was put forward by David Lewis (In 'Counterpart Theory and Quantified Modal Logic' (1970), and *Counterfactuals* (1973).

[43] J. J. Hintikka. *The Intentions of Intentionality and Other New Models for Modalities*, pp. 218-219.

[44] J. J. Hintikka. The Secantics of Modal Notions and the Indeterminacy of Ontology, *Art. cit.*, p. 402.

[45] See: Bertrand Russel. Knowledge by Acquaintance and Knowledge by Description.

[46] J. J. Hintikka. *The Intentions of Intentionality and Other New Models for Modalities,* p. 1-25.

[47] Esa Saarinen. Continuity and Similarity in Cross-Identification.

[48] J. J. Hintikka. *The Intentions of Intentionality and Other New Models for Modalities.* p. 131.

[49] Barbara Hall Partee. Opacity, Coreference, and Pronouns.
[50] Saul Kripke. Speaker's Reference and Semantic Reference.
[51] See Tyler Burge. Belief *de re; idem.* Sinning against Frege.
[52] Esa Saarinen. Quantifier Phrases Are (at least) Five Ways Ambiguous in Intentional Contexts.
[53] Hector-Neri Castañeda. Perception, Belief, and the Structure of Physical Objects and Consciousness; On the Philosophical Foundations of the Theory of Communication: Reference; *idem.* The Semiotic Profile of Indexical (Experiential) Reference.
[54] See: Charles Chastain. Reference and Context.
[55] This quality of names has compelled several investigators to consider them *'propositionally transparent'*, i.e. not disclosing the thought content given them by definite speakers of the language. (See: Hector-Neri Castañeda. On the Philosophical Foundations of the Theory of Communication: reference; *idem.* The Semiotic Profile of Indexical (Experiential Reference.)
[56] This object can have a physical or an abstract nature, but the reference to it can be made through the mediation of some other object as a representative of it, etc. (for example, when regarding the picture of some object and uttering 'this', I may have in mind not the picture of the object but the *object itself,* i.e. although I do not refer (in the direct sense) to the object but to the picture of it, I am referring all the same to the object through its picture).
[57] This interpretation of the indexical 'I', employed in different contexts, may naturally require a definite modification. When a writer, for instance, tells a story in the name of a character of his book, employing 'I', the 'I' obviously refers to the character; similarly, simultaneous translation into another language may contain a use of 'I' which does not mean that the interpreter has in mind himself. The 'I' relates to someone who may possibly have employed *'Ya', 'Jé,' 'Aš'*, etc.
[58] David Kaplan. On the Logic of Demonstratives.
[59] John Perry. Frege on Demonstratives.
[60] T. Burge. Sinning against Frege.
[61] John Perry. The Problem of the Essential Indexical; Robert C. Stalnaker. Indexical Belief.
[62] See: John Perry. The Problem of the Essential Indexical.
[63] See: Anthony Quinton. *The Nature of Things,* and Ernst Tugendhat. *Vorlesungen zur Einführung in die sprachanalytische Philosophie.*
[64] From this standpoint Wittgenstein's words are rather closer to the truth: 'But it is precisely characteristic of a name that it is defined by means of the demonstrative expression "That is N" (or "That is called "N").' (*Philosophical Investigations,* p. 19e).
[65] Bengt Hansson. A Programm for Pragmatics. *Art. cit.*, p. 168.
[66] Saul Kripke. Speaker's Reference and Semantic Reference.

Chapter IV

THE MEANINGFULNESS OF LINGUISTIC EXPRESSIONS: THE PROBLEM OF CRITERIA

1. Linguistic and Logical Calculi: the Limits of Their Analogies

The point of comparing two factors—a speaker's conceptual system and the postulated 'semantics of language'—is obvious when one regards the meaningfulness of linguistic expressions as a problem of *establishing criteria* of meaningfulness in the search for criteria of the correctness of their construction. In that sense the building-up of a semantic theory of natural language can be treated as an attempt to construct a decision procedure for the concept 'meaningful expression of natural language' and so as an attempt to demarcate *meaningful* and *meaningless* expressions systematically. The drawing of such a line is based on the supposition that meaningful expressions form a recursive set: the point concerns explanation of a speaker's ability to generate and recognise not only *meaningful* expressions, but also to generate and recognise *meaningless* ones. The attempt to elaborate such a discriminating procedure has been made in contemporary formal studies of natural language (as was shown above) by constructing a calculus by which to determine the correctness of the structure and, semantically, the meaningfulness of a linguistic expression. Such a calculus, treated as a formal system, can be called a *linguistic calculus.*

For a logical calculus the decision problem consists in establishing wheather a given sequence of signs, i.e. an expression of a given language, is a theorem or not. The success of drawing an analogy between logical and linguistic calculi obviously depends on the possibility of treating the terminal expressions generated by the rules of linguistic calculus as theorems.

In a *logical calculus* the semantic analogue of the syntactical concept 'theorem' is the concept 'valid expression'.

The idea of the construction of a logical calculus lies in codification or systematising what are called 'logical truths', i.e. valid expressions; the corresponding formalism serves to specify those valid expressions that are too complicated for an intuitive understanding of a logician. A logical calculus is taken as adequate if it generates all and only valid expressions. Since the set of these expressions is infinite, it cannot be characterisation by an enumeration of its members; such a characteristic is achieved by abstracting the specific recursive structure.

The idea of the construction of a *linguistic* calculus consists in codifying and systematising what are called *syntactically* and *semantically* correctly constructed expressions of natural language as an explanation of the intuitive concept of correctness and of a speaker's capacity to understand any (new) expression of the language. A linguistic calculus is considered adequate if it generates all and only well-constructed expressions of the language. The criterion of the adequacy of this explication lies in its conformity to the *intuition* of speakers of the language; the infinite set of well-constructed expressions is given by abstracting their specific recursive structure.

It is thus a matter of the possibility of drawing an analogy, between the pairs of concepts 'to be a theorem' and 'to be valid, on the one hand, and 'to the generated' and 'to be meaningful', on the other. Let us consider the content, foundation, and methodology of the consequences of drawing this analogy.

It is clear from what has been said that both logical and linguistic calculi can be characterised in terms of *normativity* and *descriptiveness*. In the first case it is a question of what expressions should be considered valid (in the case of a formal language), and consequently what norms logically well constructed arguments should correspond to (i.e. a matter of the competence of an *ideal logician)*. In the case of natural language it is a question of what expressions of this language should be considered meaningful, and consequently what norms meaningful expressions of natural language should meet (i.e. it is a matter of the competence of the *ideal speaker of the language*). Descriptiveness, in

turn, concerns the correspondence of the constructed models to the real procedures of generating expressions.

A concept essential for both logical and linguistic calculi is that of the *logical form* of an expression as what stipulates, determines the logical relations of expressions at a certain level of disclosing their logical form, in case of natural language at a certain level of its formalisation. Whereas the correctness of the construction of an expression is preliminary in logical calculus, and a necessary condition of its demonstrability, in linguistic calculus the meaningfulness of an expression is treated as the *final* aim of the calculus. Furthermore, whereas validity in logical calculus is a property that is transferred, by the rules of inference or transformation, from axioms (which are correctly constructed expressions) to theorems (which are also correctly constructed expressions), in linguistic calculus the predicate 'meaningful' can only relate to the final result of the calculus, i.e. to the *linguistic expression itself*.

As I have shown, the deep, basic structures, logical forms of expressions, as their semantic representations, can be given different formalisations: by rules of 'phrase-structure' with subsequent interpretation in a set of universal semantic markers; by rules determining the correctness of the construction of a deep structure as a logical form expressed in terms of universal atomic predicates and interpreted in the semantics of intensional logic; by rules of 'categorial grammar', with subsequent interpretation in terms of intensional logic. These semantic representations, being abstract formal objects, are not as intuitively meaningful (correctly constructed) as the linguistic expressions generated by, or inferred from, them. Furthermore the 'deeper', i.e. the more abstract, the structures correlated with certain expressions, the less intuitive they are, and the less it is clear that some empirical statements are made in general in respect of them.

The concept of the *universality* of structures in the transformational-generative grammar is linked with the idea of structures sufficiently remote from surface structures. But since the concept of transformation is supposed in this case to be very strong, being assigned, moreover, to a

set of formal objects that are entities containing categories undefined in the theory, a supposition of the *triviality of a statement of universality* is unavoidable. At the same time an obvious and no more consoling consequence of the requirement of *closeness* of the logical form, or semantic representation, to the surface form of a linguistic expression is that the latter must be recognised as the best semantic representation of itself.

Thus, whereas validity of axioms, on the one hand, and theorems on the other may be tested, the meaning identity of the deep and surface structures of an expression, of the expression's logical form, and of the expression itself, is not verifiable—it is *simply stated* or at least *implied*. When we speak of the correctness that relates to both levels of analysis, it may obviously be only a technical matter; then the concept of correctness is determined by the *calculus itself*: the correctness of an expression is its generatability in the given calculus. But in that case any linguistic calculus necessarily describes all and only correctly constructed expressions of natural language. In accordance with the dichotomy of weak and strong generative capacity drawn in modern formal linguistic theories of natural language, such calculi are at least weakly equivalent. Strong equivalence would signify that, in addition to a capacity to generate the same set of correctly constructed linguistic expressions, they ascribe the same, i.e. equally adequate to speakers' intuition semantic properties and relations to each of them.

To discuss the decision procedure for a logical calculus (for example, for such an elementary one as the classical calculus of propositions), it is necessary of course to have an intuitive concept of validity, independent of the corresponding formalism, as that which is proper to all valid expressions of the language under study. In that sense valid expressions are reviewable before the formalism that serves as their explication is constructed. It is necessary, moreover, for validity (as it is defined in logical calculus), or the formal definition of validity, to correspond to its intuitive idea. To establish the validity of a given expression by a finite number of steps is to indicate the *decision procedure* for this property of the expression. Similarly, in order

to describe a natural language adequately, it is necessary to have a concept of the syntactic or semantic correctness of an expression of this language, irrespective of the concrete linguistic calculus or method of semantic representation.

Can expressions of natural language be treated in the analogous way? Is there something inherent in all and only correctly constructed expressions of it that the linguist or logician knows when he begins to explicate by means of a certain formalism or by posing the task of formally defining the correctness of linguistic expressions as the construction of a decision procedure for the property of linguistic expressions under study? These questions call for special analysis, to which I shall now turn.

2. The Meaningfulness and Semantics of Language

Demarcating the syntactic and semantic components of grammar in the interpretative conception entails demarcating two aspects of the correctness of the construction of a linguistic expression of natural language, the *syntactic* and the *semantic*. The analogy between logical and linguistic calculi is seen as follows. When a formal language is being constructed by indicating its primitive terms and the rules of formation of its expressions, a definite semantic interpretation of expressions generated by the appropriate calculus is presumed to be possible. And, moreover, as a rule, the situation is excluded in which certain expressions of the language will not be interpreted at all and therefore will say nothing about the set of objects under study. But, when the *possibility* in principle of such a situation is presumed (for example, at the expense of extending the logical calculus or a definite standard of interpreting it), then the language generated by this calculus will contain both syntactically incorrectly constructed expressions and *meaningless* yet *syntactically correctly constructed expressions.* And natural language is treated as such, i.e. as an 'interpretationally incomplete' language.

According to the interpretative conception of semantics, a linguistic expression is meaningful when it is generated by the rules of the grammar under study, or rather, if its deep syntactic structure can be interpreted without infringing on the restraints on the structure of possible semantic objects formulated in the given calculus. The point concerns the 'selective' restrictions contained in the meaning of the linguistic expression along with the semantic markers that determine its semantically permissible combinatory possibilities during construction of the meaning of syntactically complex components from the meaning of their parts. Otherwise the expression is qualified as lacking sense, i.e. as meaningless. Then this expression is not treated as in any way inferentially related to other expressions of natural language.

The formulating of these semantic restrictions, as a rule reflects speakers' everyday cognitive experience in view of the postulate stated in the theory of its, the theory's, empirical verifiability as a criterion of its adequacy to speakers' intuition. In the model considered it is canonised, being given the status of 'semantics of language', and interpreted as *speakers' knowledge of the language's system*, which represents their linguistic competence as against their *knowledge of the world*. Although the inclusion of definite restrictions on the construction of meaningful linguistic expressions reflects understanding of the necessity of a theoretical reconstruction of speakers' intuition, which bears on the difference of the meaningful and meaningless, the set of these restrictions is not in itself either exhaustive or adequate.

(1) Expressions meaningful intuitively are taken as the object of the semantic model. In other words, these expressions, representing, in my view, speakers' knowledge of the world, are given the status, in the interpretative conception of semantics, of speakers' knowledge of the system of the language. With that approach meaningless linguistic expressions are ones that deviate from the semantic norms characterising the given set of linguistic expressions taken as meaningful in the given model. Consequently, characterising expressions as meaningless, i.e. as incompatible with

speakers' knowledge of the language, is treating them in fact as *incompatible with speakers' knowledge of the world*, i.e. knowledge expressed by the given expressions of the language. If speakers' knowledge of the world changes, their knowledge of the language changes too, even if it relates to that type of the knowledge of the world, which is called the 'semantics of language', in which evaluation of this knowledge in the context of the speakers' conceptual systems is disregarded.

(2) The understanding of meaningless sentences as those that do not get interpretation in the given model is clearly unacceptable, since the *semantic difference* between different sentences equally meaningless from the angle of this model is intuitively undeniable. The inadequacy of this approach is obvious when we are concerned with belief sentences that contain such 'meaningless' sentences in their subcontextual part.

Finally, the problematicalness of the restrictions contained in the theory (as a theory of speakers' semantic competence) is that its conceptual apparatus does not envisage the connection of its constructs with extralinguistic reality, and examination of the *extralinguistic* factor of the use of linguistic expressions. This factor is taken into account to some extent, of course, by the *performance theory* of language. From that angle a sentence-type may be meaningful in a language (in a null context), but the token of this sentence (the same sentence when used in a definite context) may be meaningless, and the sentence-token may, on the contrary, be meaningful in a definite context of its use but meaningless in language.[2] Such a differentiation and comparison of the aspects of meaningfulness once more demonstrates the untenable nature, in my view, of the concept 'meaningful in language' itself, or meaningful from the standpoint of the 'semantics of language'.

The 'ontological neutrality' of the theory comes out in this, not in its proponents not wanting to be drawn into 'metaphysical' disputes about entities, but in examination of the *link between language and the world*, and between language and speakers' conceptual systems, being considered inessential for formalising the predicate 'meaningful ex-

pression of natural language'. The set of expressions of natural language that break its rules and restrictions of the model but are recognised by speakers of it as quite correct (not in some absolute sense, but relative to the *possibility of using them in a definite context*) is thrown overboard in this model.

The closed intralinguistic nature of the model under study as one of an ideal speaker, 'capable' of generating and interpreting linguistic expressions only taken separately within the framework of the model's theoretical apparatus, leads to an absolutising of the semantic properties and relations of linguistic expressions, including the property of their meaningfulness. The adequacy of the explanation of these properties and relations can therefore only be evaluated in view of this feature of the theory. It is in this narrow sense (abstracted from the functioning of language in the process of cognition, in the construction of a conceptual system, and in communication) that one can say that there is some 'semantics' or 'semantic system' of natural language, and that the conception under consideration formalises the property of the meaningfulness of linguistic expressions.

However, if one does not accept such 'ontological neutrality' of the theory, one must recognise that asserting the empirical character of the theory, on the one hand, and considering it as a theory of speakers' linguistic competence, on the other, are incompatible. The differentiation and opposing of *intralinguistic knowledge* (as speakers' knowledge of the system of language) and extralinguistic knowledge (as speakers' knowledge of the world) in the aspect under study, i.e. from the angle of establishing criteria of the meaningfulness of linguistic expressions, is not only unfounded empirically but is also theoretically barren. In that light appeal to the concept of 'an ideal speaker of the language' as an analogue of the concept of 'ideal logician' clearly distorts the very idea of the explication of a speaker's intuition. The creative potential of the latter is not exhausted by the recursivity of the rules for constructing linguistic expressions, while the construction of a semantic theory adequate to speakers' intuition cannot be regarded as

a task of the specification and generation of correctly constructed expressions that are too complex for a speaker's understanding.

3. Meaning Postulates and Pluralism of Logical Forms

Allowance for the extralinguistic factor of the context of the use of linguistic expressions leads, in the conception of *generative semantics*, to a relativising of the concept 'correctly constructed expression of natural language' with regard to members of a definite linguistic community, that is, to their conceptual premisses about the state of affairs in the world, and to inclusion of these premisses in the semantic representation of linguistic expressions. That is undoubtedly evidence of a more realistic understanding (than in the interpretative model) of the function of natural language in cognition and communication. But, while noting the fruitfulness of the conceptual approach to semantic analysis of linguistic expressions, one must stress that in this conception, too, one has to do with the explication of the 'semantics of language' as a definite semantic system, and the explication itself must be accomplished by a 'natural logic' as a particular logical system.

The transition to speakers' conceptual system in generative semantics is only an attempt to formalise one of the most complicated segments of the 'semantics of language'. The determinant motive in this analysis is thus not explication of the structure of the conceptual system but formalisation of the 'semantics of language'. Allowance for the conceptual use of linguistic expressions makes impossible, —if only because of the possible incompatibility or even incommensurability of speakers' conceptual premisses,— at least uncontradictoriness of the system of axioms, or postulates of meaning, of such a logical system. Yet knowledge of the set of logical structures of sentences that constitute individual knowledge, and are the object of belief (as will be shown in the next chapter), makes it possible to speak of the inferential relations assigned to members of this set. The possibility of the substitutivity of linguistic ex-

pressions in this context is determined by knowledge of what takes place in a definite speaker's conceptual alternatives to the real world.

The specific nature of the conditions of the substitutivity of linguistic expressions in these contexts makes it necessary to relativise individual knowledge of the very concept of the logical structure, or logical form, of sentences that express speakers' belief. A feature of the 'semantics of language' as a logical system, and as a theory of argument carried on by means of natural language, is thus not just that it is infinitely far from completion. Its special feature is the unattainability in principle of its aims as a theory of the 'semantics of language', i.e. as a theory of argument realised on the one hand by means of natural language, and on the other hand *really* carried out by speakers of the language *on the basis of a definite conceptual system*.

Finally, when allowance is made for the need to correlate linguistic expressions with various logical structures interpreted model-theoretically as their possible meanings, the problem of the *criteria of meaningful choice* of some one logical structure remains insoluble when there is some one conceptual context. What is meant is the context, not as a criterion of the meaningfulness of the usage of the expressions, but the context as a criterion of *resolution of the ambiguity* of a linguistic expression and, in a broader understanding, as a criterion of the meaningfulness of the linguistic expression taken in a context with other expressions and, depending on the degree of semantic coherence of their logical structures, forming a meaningful logical structure with them or not. Coherence of this sort, from my point of view, plays a fundamental role in an argument carried on by means of natural language.

In referential semantic conceptions, in which the concept of a sentence's meaning is treated as inseparable from information that the world is such as will meet its truth-conditions, the construction of a definition of meaningfulness is regarded as the construction of a recursive definition of *truth* for an expression of natural language. Because of the parallelism of the syntactic and semantic operations (rules) of the generation of a linguistic expression postulated in these con-

ceptions, the recursive definition of a syntactically correctly constructed expression is isomorphic to the recursive definition of the semantic correctness, i.e. *meaningfulness,* of a linguistic expression. In other words, the meaning of a correctly constructed expression is inferred in accordance with the operations by which the expression is built syntactically. The aspect of meaningfulness of linguistic expressions is consequently understood here as the aspect of their *interpretation in the given calculus*, i.e. as the aspect of the ascription of meaning to a linguistic expression as its (the expression's) truth in a certain 'possible world'. The introduction of any restrictions (like the 'selection rules' in the interpretative conception of semantics) on the construction of possible semantic objects is not considered as essential for constructing a semantic theory of natural language as a theory of the relation of language and the world.

In Montague's conception the question of the meaningfulness of linguistic expressions does not arise on this plane because explication of the *intracategorial* (relative to one and the same syntactic category) semantic differences of *descriptive* (in contrast to logical) expressions of natural language is not thought to be relevant for the purposes of the semantic theory of language. With this approach the sentences 'The man is sleeping' and 'The idea is sleeping', for example, must be considered as equally meaningful.

The introduction of restrictions on the construction of meaningful expressions is not ruled out in principle (as in Lewis's conception) by virtue of the assumption that intensions (as the meanings of linguistic expressions) can be partial functions from possible worlds (generally speaking, from indexes, or points of reference) or null functions indeterminate for certain possible worlds (i.e. the language generated with this approach can be regarded, in Katz's terminology, as 'interpretationally complete'). Thus, according to Lewis, if it is supposed that the expression 'green idea' has a null intension, then it must be shown that the intension 'green' should be a partial function for such arguments as the intension of the expression 'idea'. In such cases this filtering link of the transformational component of the linguistic calculus with a basis structure formally envisages

that expressions with a null intension are not represented in the surface structure.

Can one say that this and analogous approaches are adequate *to explicate the concept of the meaningfulness of linguistic expressions*? If we take as an example the category of ambiguous expressions (perhaps the most indicative), then (as it appears from the analysis of these theories) their explicating possibilities boil down at best to indicating *the spectrum of possible interpretations* of these expressions (I leave aside here the question of these interpretations' link with definite conceptual systems). *Resolution of this ambiguity*, i.e. what the speaker of the language does in *understanding* expressions of natural language and building one sense or another of it in accordance with conceptual factors, is beyond the scope of these theories. It is in this sense that the theory yields the meaning of *all meaningful expressions* of natural language taken *independently*.

The concept of independence is obviously invested here with the sense that the meaningfulness of linguistic expressions is given by the rules of the linguistic calculus, which has the task of explicating the 'semantics of language'. These rules simply fix a certain usage of linguistic expressions. Analysis of their use in a number of other possible contexts brings out the limited character of any system of such rules as rules of the semantic representation of linguistic expressions belonging to a definite linguistic calculus and determined by a given choice of an usage of linguisitc expressions. The orientation towards a definite calculus as proposing the *only* adequate formalisation of natural language therefore cannot be considered well-grounded, because the choice of one formalism as giving a structure basic and essential for determining the semantic properties and relations of linguistic expressions, and as the most adequate, and uniquely correct theory of the semantics of linguistic expressions, is never exhaustive. It just points to a certain series of *possible interpretations* of linguistic expressions that are essentially differentiated in accordance wih the context of their use.

The ascribing of different basic structures to one and the same expression in different formal theories as the expres-

sion's logical form, obviously depends on the content invested in the concept of the *logical form* which in turn is determined both by the interest in disclosing one aspect or another of the linguistic expression as intuitively significant, and by considerations of an intratheoretical nature. The ascription of definite semantic properties and relations to expressions of natural language must consequently presume dependence on the method of semantic representation selected. The very possibility of such an ascription, or pluralism of logical forms, is evidence of the illegitimacy of absolutising the concept of logical form.

One can agree, in this connection, with the conclusion drawn by Haas from analysis of the descriptive possibilities of a number of modern linguistic theories.[3] It is essentially as follows: what is presented as a description of the basic structure of a linguistic expression in various formal models is nothing else than a description of various *semantic tendencies* in the use of a syntactic expression realised within the limits of definite semantic rules without being part of them. It is a matter of tendencies that are realised when there is a definite lexical choice or definite context of use of the linguistic expression. Their corresponding descriptions in linguistic calculi should be treated in terms of description of the compatible semantic properties of the corresponding grammatical constructs manifested in a definite, specific context of use of the expression, and not in terms of incompatible alternative basic rules (or restrictions). An appearance of rivalry between theories is thus created by the representation in them, by means of alternative rules (restrictions), of what in fact are *compatible semantic tendencies characterising one and the same linguistic construction.*

Thus, Haas, when examining the semantic 'potential' of a constituent '*Y*' in the structure '*X* flew *Y* to *Z*', points out that both the semantic property of 'object' and of 'subject', 'instrument', 'agent', etc., could be ascribed to '*Y*' in various models of basic structure, depending on the concrete lexical choice and context of use. These descriptions are treated as semantic tendencies of a given syntactical position. Any of them can be activated, and equally 'sup-

pressed' with a definite context and lexical choice. One must also add that the explication of the semantics of linguistic expressions, realised in terms of *these* semantic characteristics and ones *similar* to them that reflect a schematising of reality which is no more than satisfactory from the standpoint of 'common sense', and which can only be extrapolated metaphorically to its less 'crudely' perceived aspects, is itself theoretically unsatisfactory.

However strong a semantic tendency is, what happens *as a rule* should not be stated as *the rule*. When a privileged status of a component of a basic rule (a rule of basic structure) is attributed to some semantic feature, other features or attributes that have the same right, and sometimes even priority in a set of other contexts, are then ruled out. This 'sensitivity' to the specific context and lexical choice is impermissible in exposition of syntactic rules or restrictions; it is characteristic of the *semantic properties* of linguistic forms. When we speak in a definite natural language, we are therefore obliged to obey its phonological and syntactic rules, but *we are, so to say, free*, within this subordination, *to make a choice among the set of semantic tendencies*. Haas saw the creative aspect of language in this very freedom of choice, and not in some generative mechanism of basic rules.

From our standpoint dependence on context—whether verbal, social, or physical—plays the principal role in determining the meaningfulness of linguistic expressions taken by themselves; the 'most meaningless' expression becomes quite meaningful when it is place din a definite, 'acceptable' context. The importance of contextual considerations is even more obvious when it is a matter of the degree of coherence of an argument constructed from a definite sequence of linguistic expressions, meaningful *per se*, but possibly not forming a meaningful whole *in corpore*. The adequacy of a theory free (if one accepts this assumption as real) to ascribe semantic structure only to linguistic expressions taken separately is very dubious.

In view of the fundamental importance of contextual considerations for determining the meaningfulness of linguistic expressions, it is legitimate to ask: can these consid-

erations be introduced into any semantic theory of natural language, in the form, for example, of a definite set of *'meaning postulates', 'rules of common sense'*, etc.? An affirmative answer would mean that a theory is possible at least that includes all the information that a person has at his disposal about the reality around him, i.e. what it is, might have been, or could be. In other words, if such a universal theory is possible, it would have to predict as meaningful not only sentences of ordinary speech (as linguists often define the empirical universe of linguistic semantic theory), but any expression of natural language and any sequence of them, i.e. it would be simply trivial.

The incompatibility of the understanding of semantic theory as a theory of the 'semantics of language', on the one hand, and as a theory whose purpose is a theoretical reconstruction of speakers' ability to understand any new expression of it, on the other, comes out on the level of examination of the procedures prescribed by the theory that underlie the phenomenon of *understanding* an expression, i.e. of *comprehending* it. A recursive relationship between the expression and some semantic object is suggested, as a rule, as an essential characteristic of these procedures in modern formal theories of natural language. Thus, according to the interpretative conception of semantics, a speaker knows the meaning of an expression when he has knowledge at his disposal of the rules of the language's transformational-generative grammar that relate the expression with definite semantic entities or *thoughts* (which are given the status of theoretical constructs, namely of *semantic markers*). In other words, a speaker understands the sentence 'Snow is white', for example, because he connects the idea that snow is white with this sentence.

According to the referential approach, a speaker knows the meaning of a linguistic expression when he has rules of the *determination of truth for his language* at his disposal. A speaker understands the sentence 'Snow is white', for example, because he knows that this sentence is true if and only if snow is white. In both cases (as regards the speaker) this explication is circular, when the object related with the expression (thoughts or knowledge of the truth-functions

respectively) is *verbal*. When it is a matter of correlation of the linguistic expressions with a non-verbal object (for example, with definite entities in the interpretative conception) as an element of a set of meanings of the 'semantics of language', a similar problem arises for this *mentalist language*. Argument about the '*language of thought*'[4] in general is simply (from my standpoint) an abuse of the term 'language', without giving it any explanatory force; if the 'language of thought' is not like ordinary language, we have a right to ask why it is called 'language'. But if, on the contrary, it is similar to ordinary language, then it is a matter not of explanation but of *translation from one unclear language into another, even less clear one*. The problem is not resolved; it is simply shelved.

4. Meaningfulness as Interpretation in an Individual Conceptual System

The problem of translation, like that of contextual determination of the meaningfulness of linguistic expressions, does not arise with the treatment I propose of the information a speaker has at his disposal in the form of a definite conceptual system. The latter, like the concepts forming it, has a definite history of formation, or generation, and reflects the individual's definite cognitive social experience at the level of everyday practice, quasiscientific, scientific, ethical, hypothetical, and other notions about the world. In the hypothesis of meaning as a continuous, non-verbal construct, the aspect of its genesis, and also the significance of the contextual considerations stressed above as an argument against absolutising the semantic properties and relations of expressions, follow from the very status of a conceptual system proposed by this hypothesis.

According to the fundamental principle of interpretation formulated in the hypothesis, a conceptual system must, so that any object (irrespective of its nature) can be interpreted within it, yield a structure of concepts significant for this interpretation that is itself continuously linked with other concepts of the system, i.e. interpreted by them. Such an interpretation of the objects in the system, as was shown

above, is the constructing of information in it about a definite (real or possible) world, of a certain *'picture of the world'*. The concept constructed in the system can also be and is, during mastery of natural language, knowledge both of its definite grammatical forms (such as the system of gender, number, case, tense, phonology) and of their semantic significance, in other words, of the rules for constructing, forming expressions of the language as a necessary condition of their correct use (from the standpoint of its grammar). Mastery of these rules (from simplest to the more complex) can be considered as mastery of the language's grammar or its system of syntax (when one understands the latter as 'grammar without semantics' as it is often done in formal theories).

Theoretically this is mastery of a recursive definition of a syntactically correctly constructed expression of the language as a formalisation of speakers' corresponding intuition. There is thus no need to resort to a hypothesis of *innate universal grammar*; it is sufficient to presume speakers' capacity to make the appropriate inductive generalisations. It is not a universal grammatical theory that is innate but the individual's capacity from birth to react selectively to the environment and to differentiate definite objects and phenomena of this environment, and to generalise their corresponding characteristics. Through this capacity, and the concepts contained initially in the system, a notion of the grammatical structure or system of the natural language is developed.

Treatment of a certain grammar as the only correct one (no less than of the formal structure of a linguistic expression as the only adequate one) not only does not sustain the arguments of a methodological order contained in Quine's theory of the indeterminacy of translation, but also refutes the existence of a set of different but equivalent grammars (at the level of a weak generative capacity) that formalise the concept of the syntactic correctness of a linguistic expression.

The meaningfulness of linguistic expressions from the standpoint of the approach I have adopted is a question of the *possibility of building a structure of concepts in a de-*

finite conceptual system. Understanding the meaning of expressions as information about a definite state of affairs in the real or a possible world, this is a question of the possibility of constructing a definite '*picture of the world*'. This possibility is determined by meeting the conditions laid down by the fundamental principle of interpretation as a function of the interpretation of the concepts given in the set of concepts and defined by a relations of incompatibility. An expression is thus considered meaningful for *a difinite system* if and only if the conceptual structure correlated with it is interpreted in the set of its concepts. In that case we would say that the expression is *understood* by a speaker as a bearer of this system. Thus, if 'p' is an expression of language L, CS_{Ind} an individual conceptual system, and c_p a concept or conceptual structure correlated with 'p', then 'p' is meaningful in relation to CS_{Ind} if c_p is interpreted in the set of concepts of CS_{Ind} .

The *content* of the interpretation, or its *quality*, i.e. *what* meaning is ascribed to the objects concerned as they are interpreted, is governed by the content of interpreted concepts as part of a definite conceptual system. From that angle qualitative differences in the interpretation of one and the same linguistic expressions, and of any objects in general as objects of interpetation in definite conceptual systems, are quite natural. Depending on how far an individual conceptual system can construct *new* concepts, it will interpret the *new* to that extent only, and the *new* will be meaningful for it to the same extent.

The 'creative' possibilities of a system consequently determine the *limits of the meaningful*, i.e. the conditions of the knowability of objects as conditions of rendering them meaningful in a definite conceptual system. Furthermore, what is traditionally understood by the meaningfulness of expressions of natural language does not mean that syntactic correctness of an expression is a necessary condition of its meaningfulness; syntactic incorrectness does not necessarily disrupt the meaningfulness of a linguistic expression. The nearly constant deviations from grammatical norms peculiar to linguistic practice are therefore tolerated in lin-

guistic communication so long as maintenance of the meaningfulness of the linguistic expression is guaranteed.

Because meaningfulness is understood here *as the interpretability by a definite structure of concepts in a given system*, an expression meaningful in relation to a certain system and certain structure of concepts may be meaningless in respect of another system or in relation to another structure of concepts of the same conceptual system. In other words, when a certain object is being interpreted, a definite structure of concepts is needed in accordance with the fundamental principle of interpretation that correlated directly or indirectly with other concepts of the system. A linguistic expression may receive more than one interpretation in a conceptual system, i.e. may be interpreted by various conceptual structures, linked with one another in a different way, but contained in one and the same conceptual system. That provides an adequate interpretation (from a speaker's point of view and the interpretational possibilities of his conceptual system) given the existence of an adequate context determining the fragment (set of concepts) of the system needed for interpretation. The system can thus not only yield several interpretations of an expression, but also select the interpretation adequate to the speaker's intuition, thereby resolving the ambiguity of the expression to some extent.

This approach makes it possible to clarify the adequacy of conceptions in which the meaningfulness of linguistic expressions is treated as *their use in keeping with the rules* in a speech act. Performance of these acts is only possible given knowledge of the conditions for successfully making them and, from my point of view, given knowledge of their meaning, which (like any other knowledge) belongs to a definite conceptual system. Only by understanding what it means to assert, ask, order, promise, threaten, etc., can a speaker realise some one *illocutionary* potential (in the terminology of the theory of speech acts) or rather, give the expression a definite illocutionary direction. Only given such knowledge, and allowing for the context of use of the linguistic expression (which is equally interpreted by the conceptual system) can a speaker recognise the inten-

tions of other speakers of the language and determine the concrete illocutionary content of the expressions used by them. Autonomously analysed speech acts (i.e. acts analysed outside conceptual systems) consequently cannot be treated as defining the sense of the corresponding linguistic expressions. Furthermore the attempt to reduce the problem of the meaningfulness of linguistic expressions in general to analysis of autonomously understood speech acts must be presumed unacceptable.

The construction of a conceptual system is at the same time the construction of a concept embodying the choice or preference given in the system to a definite concept, or to a definite structure of concepts, as the *belief* of a speaker of the language—whatever aspect of the perception or cognition of the world it belongs to. The 'singling out' of a definite structure of concepts from a set of others can be treated as choice of a definite, meaningful 'text' (in the broad informational understanding of the term) from a set of other meaningful 'texts' (i.e. ones interpretable in the given conceptual system) as the text which is 'accepted' by the individual and that forms the *orientational basis of his attitude to the world*, and in particular the basis of his *veridical attitude to reality*. In this understanding of the meaningful I also see a precondition of the analysis of the relationship of the *meaningful*, of what *is held to be true*, and what *is true*.

From this standpoint, a change in an individual's belief may be considered as a rejection of a definite, 'singled out' structure in favour of another, equally meaningful (interpreted in the system) structure, in favour of another 'text'. The set of these 'singled out' structures, mutually related (as regards interpretation) and connected with the whole conceptual system, forms what may be called the speaker's 'conceptual picture of the world', or 'system of beliefs' (see the next Chapter).

Pointing out of the criteria of the meaningfulness of linguistic expressions, and consequently its prediction, cannot belong to the domain of any theory of the 'semantics of language'. When such a theory is really given the task of explaining speakers' capacity to understand their language's

expressions (both known and new), it must inevitably be converted into a utopian universal science; in order to ascribe meaningfulness to linguistic expressions, it must contain knowledge about everything, otherwise it risks giving trivial, no less destructive predictions like 'Any expression is meaningful', 'Every argument is meaningful', and so on. In any case it does not then explain the human ability to understand the world and to use language meaningfully.

In the light of these considerations there are no grounds for speaking either of the absolute meaningfulness of a linguistic expression or of its meaningfulness relative to some language (excluding, of course, the purely grammatical aspect of the expression). Even arguments about the meaningfulness of an expression relative to some use of it, or of speakers' definite propositional attitudes (as happens in certain logico-semantic conceptions of natural language) are not sufficiently constructive when they are linked with a quest for semantic universals as part of the 'semantics of language', and not with a search for universals as part of the structure of speakers' conceptual systems.

Notes to Chapter IV

[1] See: J. Katz. Logic and Language: an Examination of Recent criticisms of Intensionalism.
[2] See: J. Katz. The Theory of Semantic Representation.
[3] See: W. Haas. Rivalry among Deep Structures.
[4] See: J. Fodor. The Language of Thought.

Chapter V

CONCEPTUAL PICTURES OF THE WORLD: BELIEFS AND KNOWLEDGE

1. The Object of Belief and the Problems of Singling It Out

Examination of the status of meaning, of the relation of language and the world, and of the meaningfulness of linguistic expressions, leads us to the problem of explaining meaning, or logical form, of belief sentences, i.e. the nub and synthesis of these problems. I shall not analyse here the other propositional attitudes that express, for example, speakers' doubt, hope, fear, surprise, etc., taking it as adequate for the purposes of the present exposition (namely for examining the aspect of the link of *thought, language, and the world*) to concentrate on a logico-philosophical analysis of belief sentences, i.e. sentences in which a speaker's belief about certain objects, phenomena, and events of the world is expressed. *By belief I shall correspondingly understand true or false information the speaker has about the real or some possible world.*

The theoretical and methodological importance of examining the problem of belief is determined by logical, philosophical, and linguistic considerations. The search for an adequate form of belief sentences that correctly reflect their logical 'behaviour' is primarily motivated by a need to establish criteria of the substitutivity of terms in belief sentences, the importance of explaining the possibility or impossibility of drawing certain conclusions from sentences that ascribe a definite belief to a definite speaker, and the need to establish criteria of restriction of speakers' logical (deductive) omniscience. All this is inseparable from an examination of the substantiation of quantification in a belief context, and the status of the intensional entities presupposed by it (meanings, propositions, possible worlds, possible objects). From the philosophical point of view this is primarily a problem of the relation of *speakers' beliefs*

and knowledge, and of subjective (individual) and *objective* knowledge, of the relationship of the processes of meaning-formation, cognition, understanding of the world, and of the role of natural language in forming a 'picture of the world'.

In contemporary linguistics analysis of the problem of belief serves as the theoretical basis for discussing such fundamental questions as the definition of synonymity (semantic identity) of linguistic expressions at the intralanguage and interlanguage levels, substantiation of the demarcation of *knowledge of language* (linguistic knowledge) and *knowledge of the world* (extralinguistic or 'factual' knowledge), of the *semantics* (as the theory of meaning) and *pragmatics* (as the theory of usage) of language. Analysis of belief sentences provides the most clear criteria of the adequacy of the theory to speakers' intuition. The problem of belief is therefore the touchstone for any formal semantic theory of natural language. It helps to determine the status of the 'semantics of language' and to further disclose the relation of the 'semantics of language' and speakers' conceptual systems.

A propos the value of analysis of the concept of belief, Bertrand Russell wrote:

> The whole intellectual life consists of beliefs, and of the passage from one belief to another by what is called 'reasoning'.
> Beliefs give knowledge and error; they are the vehicles of truth and falsehood. Psychology, theory of knowledge and metaphysics revolve about belief, and on the view we take of belief our philosophical outlook largely depends.[1]

One can single out two interconnected aspects in the problematic of belief: (1) the question of *the nature of the object of belief*, and (2) the question of *its isolation, or specification*. Formally, a belief is a relation consisting of the *subject* of the belief (the individual holding the belief concerned) and its *object*, symbolically B (a,p) ('a believes that p'). In logic, as a rule, either sentences or propositions are regarded as the objects of belief. On the linguistic plane by sentence one understands a certain linguistic phe-

nomenon, or definite verbal form. In the context of the analysis of belief from the logical standpoint, a sentence is understood as that which is subject to truth appraisal and which, in that quality, is that about which the definition of truth is built (relatively to a definite language).

The problem of singling out a belief is one of what sentences express *one and the same belief*, or rather what changes (in the sense of the substitution of one expression for another) are possible in the sentence under study from the angle of preserving the *identity* of the belief. Posed like that this question can obviously also be treated (and this is particularly important) as a problem of the *synonymity* (i.e. semantic identity) of linguistic expressions.

I shall now examine the logical arguments by which one approach to the individuating of a belief or another is substantiated, then sum up the exposition in § 6 and present my own approach to the solution of the problem.

Carnap once proposed the principle of '*intensional isomorphism*' as a means of establishing substitutivity in a belief context.[2] Two sentences are considered intensionally isomorphic if they are constructed in the same way (have the same syntactic structure) from elements that are logically equivalent. Two sentences are considered logically equivalent in the semantic system *S*, in turn, if the sentence that asserts their equivalence is logically true, i.e. if the equivalence under study occurs in all the situations described in *S*. Two expressions have the same extension in *S* if they are equivalent in *S*; two expressions have the same intension in S, if they are logically equivalent in *S*. A sentence '*p*' is considered *extensional* in relation to a given occurrence in it of the expression 'q', if as a result of the substitution of '*q*' by an expression 'q'' equivalent to it, the proposition '*p*' retains its truth-value. Then, it is said, '*p*' forms an *extensional context* in relation to '*q*'.

Sentence 'p' is considered *intensional* as regards this inclusion of expression 'q', if 'p' is not extensional in relation to 'q' and 'p' is replaced only by an expression 'q'' that is logically equivalent to it. Then 'p' forms an *intensional context* in relation to 'q'. The sentences of first order logic are thus extensional, while those constructed by means

of a modal operator of necessity are intensional. Propositions of belief, according to Carnap, are neither extensional nor intensional. Thus, if 'q' is logically true (for example, 'It is raining or it is not raining'), and 'q'' being a theorem of logic, is also logically true, it does not necessarily follow that they are interchangeable, for example, in the context 'John believes that. . .', when 'John believes that q' is true, 'John believes that *q'*' may be false; the truth of the first does not guarantee the truth of the second.

Therefore, Carnap also proposed treating the relation of *intensional isomorphism* as one stronger than logical equivalence. The efficacy of the answer to the counterargument[3], which consists in there being no guarantee, even when 'q' and 'q'' are two different but intensionally isomorphic sentences, for example, sentences of logic, that they are interchangeable in a context of belief, then depends on how this concept itself is interpreted, i.e. what is regarded as the *basis* for ascribing a definite belief to a speaker. If the treatment of a speaker's dispositions (as the ultimate basis for ascribing the belief) is not satisfactory, then (according to Carnap) the concept of belief itself must be regarded as a *theoretical construct* in respect to which various facts may only be inductive support. Then retention of the truth-value of a sentence in which one expression has been substituted for another, intensionally isomorphic to it, is simply postulated. If a speaker's disposition to accept a definite sentence is treated not as final proof but as the inductive basis of his holding a definite belief, then the concept of belief gets the status of a *theoretical construct.*

2. Intensional Objects and Quantification

When it is suposed that there are no other logical equivalences than valid sentences whose truth is guaranteed by their logical structure in the classic understanding of it, then the introduction of intension on the basis of a general semantic concept of logical equivalence defined by means of a concept of logical truth, is not justified; the more so that the concept of logical truth as truth in all possible

states of the universe cannot in principle be employed in Carnap's system to define the concept of *analyticity*, because the former works exclusively with predicates that are independent of one another. (In other words, there is a possibility, in Carnap's system, of describing a state in which, for example, 'John is married' and 'John is a bachelor' are both true, so that the sentence 'No bachelor is married' would have to be qualified, according to Carnap's criterion, as a synthetic sentence not an analytical one.)[4]

At the same time the definition of an analytical sentence as such, which is obtained from logically true sentence by substituting synonymous descriptive terms in place of predicate constants (as, for example, in passing from the sentence 'John is married or John is not married' to 'John is married or John is a bachelor') is not satisfactory because it contains reference to the concept of *synonymity*, which itself is defined through the concept of *analyticity*.

According to Quine, these are no grounds for stating that synonymous or nearly synonymous linguistic constructions are expressions of a *definite entity* called 'meaning' or 'proposition'. It is sufficient to suppose that these expressions can belong to a definite set because of their synonymity established on a *verbally behaviourist* basis, i.e. *pragmatically*. Consequently, Quine is not against such a *relative* concept of synonymity and analyticity, but at the same time suggests that it cannot be employed as a criterion of the identity of propositions, because 'propositions have to be the same or distinct absolutely; identity, properly so-called, knows no gradations',[5] and the 'question of conditions for identity of propositions presents not so much an unsolved problem as a mistaken ideal'.[6]

From a statement about the inductive indeterminacy of dispositions to agree with a sentence and deductive indeterminacy of thanslation of a sentence put into a belief context, it follows that the analysis of belief sentences can be made without requiring 'absolute transparency' of the belief, i.e. a possibility of substituting one expression for another in a belief context. In Quine's analysis, therefore, the belief, or rather the verb 'to believe' that forms this con-

text, is interpreted either as 'referentially transparent' or 'referentially opaque' construction.[7] In the first case substitution of a singular term for a coextensive singular term in the sentence-object of belief does not entail changing the truth-value of the belief sentence. The difference here is based on the demarcation of the '*purely referential*' and '*opaque*' position of the term, and the criterion of its 'purely referential' position is taken to be applicability to it of the principle of the substitutivity of identity: formally $(x)\,(y)\,(x = y \rightarrow (Fx \rightarrow Fy))$

According to Quine, coreference, and consequently quantification, is impracticable across an 'opaque' construction, i.e. one cannot transfer a reference from a term that is outside an 'opaque' construction to the same term (or a term coextensive with it) that is inside an 'opaque' construction. If there is quantification across a belief context it means that the context being studied is 'transparent'. In a 'referentially opaque' context *we are mentioning* linguistic expressions rather than *using* them. It is suggested that quantification in such a context has only as much sense as the question of whether an object exists that satisfies the open sentence 'Fx' (in other words, whether '$\exists x Fx$' is true), if satisfaction of the object of the sentence is made to depend not only on the object itself but also on the means by which it is referred to.

The ineffectiveness of such principles, like the substitutivity of identity and existential generalisation in modal contexts is therefore evidence, according to Quine, either that any modal arguments are non-referential and therefore do not admit of quantification, or that some unusual entities are taken as the values of connected variables. In any case, there is a conflict from Quine's point of view between quantification and modality that leads (if one insists on quantification in that context) to acceptance of the doctrine of essentialism.[8]

When Quine undertook logical analysis of belief sentences, as a preliminary paraphrase of them he employed sentences that contained so-called *intensional abstractions*.[9] Correspondingly he treated the verbs of propositional attitudes as relative terms, predicated in relation to propositions, at-

tributes, and intensional relations. Thus, the sentence 'Tom believes that Cicero denounced Catiline' is paraphrased as follows: (a) 'Tom believes [Cicero denounced Catiline]' (here the square brackets are a conventional sign of intensional abstraction); (b) 'Tom believes *x* [*x* denounced Catiline] of Cicero'; (c) 'Tom believes *xy* [*x* denounced *y*] of Cicero and Catiline'.[10] According to Quine's methodology of rejection of intensional objects, these paraphrases are then translated into corresponding standing sentences (i.e. specified as regards place, time, and other contextual factors) that are closed or open: namely, (a) 'Tom believes-true "Cicero denounced Catiline",' (b) 'Tom believes-true "*y* denounced Catiline" of Cicero'; (c) 'Tom believes-true "*y* denounced *z*" of Cicero and Catiline'.[11]

The verb of the propositional attitude (in this case 'believes') can be treated not as a general relative term but as part of an operator 'to believe that' or 'to believe [-]' or 'believes-true "-"' (in which the last expressions are open), which when referred to the sentence, produces a complex, absolute general term. This sentence then becomes a direct constituent of this complex absolute term and the initial belief sentence may be represented in its opaque interpretation by the form '*Fa*', in which '*a*' is a singular term (in our case 'Tom') and '*F*' is a complex predicate. Accordingly, 'believes' in 'Tom believes *x* [*x* denounced Catiline] of Cicero' becomes part of an operator which, being referred to the open sentence '*x* denounced Catiline' and the variable 'x', generates a relative general term 'believes x [x denounced Catiline] of'. Restoration of the referential transparency' of the belief sentence thus means, according to Quine, putting the name or a definite description of an individual *beyond the scope of the 'belief-operator'*.

But here arises the problem of the adequacy of the canonical paraphrase to the *content* of a belief, in addition to appraisal of the adequacy of the given approach as such (one of its undesirable consequences for instance is affirmation of an infinite number of one-member predicates based on 'opaque' constructions, which makes it impossible to specify their truth-conditions). According to the para-

phrase in question, it turns out that Tom believes what the given open sentence expresses—but it is false. In other words, if the preposition 'of' is used to identify Cicero outside the scope of the operator 'believes', i.e. 'transparently' in Quine's terminology, we then have no chance of passing to a 'transparent' construction. These consequences of the analysis are obviously unsatisfactory on the intuitive plane; they are evidence of the inadequacy of the approach studied.

3. Synonymity and Analyticity: Extrapolation of the Concept of Logical Form

It was not Quine's approach but rather Carnap's idea of intensional isomorphism that was taken into the transformational-generative theory of natural language so as to explain the synonymity of expressions. But whereas this idea was only declared by Carnap, it received explication in the theory of interpretative semantics—through the construction of a definite formalism—in terms of the interpreted deep syntactical structure of a linguistic expression. The semantic properties and relations of linguistic expressions (including the relation of synonymity being examined) are established in it from the semantic status of the expression and according to the definition of these properties and relations contained in the theory. Two sentences are said to be *synonymous*, for instance, if the same semantic representation is ascribed to them; this is done in terms of semantic markers of the theory's linguistically independent constructs. The ascription of the same semantic representation to linguistic expressions is treated as an evidence not only that they are synonymous but also of why they are synonymous—information of this kind is represented formally in semantic representations.

A sentence is characterised as *analytical* if each semantic marker contained in the meaning of a deep predicate also enters the meaning of expressions that represent the presupposition of the sentence (i.e. if it enters the meaning of name groups; in traditional terms, the meaning of the subject or object of the sentences; in logical terminology,

the meaning of the arguments of the propositional function), and in particular if each semantic marker of the predicate is included in the meaning of the subject.

According to this approach analytical sentences are not necessarily true; there are cases when the presupposition of the sentence is not met (for example, 'The present King of France is a male' or 'The man who drew a round square drew a round square'). 'To be analytical', according to Katz, is a property of the *logical*, or *semantic structure, of a sentence* (as it is understood in the theory concerned), while 'to be true' is a relation between *a sentence and the world* (which does not come *a priori* into the domain of the theory being examined).

Because of that it is considered that the most that can be said, starting from linguistic considerations, is that an analytical sentence is guaranteed against falsehood; consequently, if it is true, then it is necessarily true. A contradictory sentence is regarded as guaranteed against truth; if it is false, it is necessarily false. One of the paradoxical consequences of this approach, and in this sense really 'nonstandard' ones, is that some sentences can be treated simultaneously as *analytical* and *contradictory* if they satisfy the definitions of these properties and are neither true nor false (like, for example, 'The round square is round').[12]

Since the meaning of a linguistic expression is determined in terms of a vocabulary of theoretical constructs, the relation of synonymity is confirmed through the identity of the formal semantic representation irrespective of the definition of analyticity. In that way we avoid the vicious circle that arises when analyticity is defined in terms of logical truth and synonymity, and synonymity in terms of substitutivity through analyticity.

The concept of *semantic consequence*, as an analogue of analytical propositions in the case of the reasoning in the theory of interpretative semantics, is treated as an explication of such a semantic relation between propositions, in which one proposition follows from another not because of some law of logic but because the logical form of the proposition that is the conclusion of the argument is part of the logical form of the proposition that is the premiss

of the reasoning. Consequently, a guarantee that the truth-value will be retained is presumed to be included in the *semantic relations* themselves of the linguistic expressions being studied. The correctness of the transition from the sentence 'John is a bachelor' to the sentence 'John is a male', when represented in the canonical notation of the logic of predicates in the forms '*Ba*' and '*Ma*', is not embraced by the given logical calculus. The latter does not contain means for differentiating this argument and an incorrect one like 'John is a boxer, consequently John is a hooligan'. The introduction here of meaning postulates like '(x) $(Bx \rightarrow Mx)$' in order to formalise the correct argument cited above, which makes it possible to represent it as a transition from '*Ba*' and '$(x)(Bx \rightarrow Mx)$' *to* '*Ma*' according to the rules for eliminating a universal quantifier and separating the consequent contained in the given calculus, is justly presumed to be completely arbitrary.[13] This formalisation does not bring out the significance of logical form for establishing the correctness of reasoning, and consequently does not yield criteria for delimiting correct and incorrect arguments at a given level of analysis, because of the absence of an adequate theory of logical form.

At the same time the introduction of *meaning postulates*, in Montague's theory, for example, presumes, as I have shown, to restore logically correct forms of argument carried on in natural language, excluded by the traditional understanding of logical form, and to provide an explication (intuitively, and not because of the traditional understanding of logical form) for correct forms of reasoning, to disclose the contribution of the corresponding expressions to the truth of the sentences containing them, and so to formally represent the semantic differences of linguistic expressions that belong to the same syntactic category. Each new type of argument (conclusion) intuitively perceived as correct yields a corresponding new meaning postulate. It is also presumed that the concept of analyticity itself should be defined by introducing meaning postulates; a sentence is defined as analytical relative to a definite analysis of it when it is the logical consequence of a definite meaning postulate of natural language.[14]

According to this conception the fact that reasoning is intuitively perceived as correct is a sign that it is in some sense *necessary*. But this necessity (from the standpoint of what is traditionally understood by the elements that constitute logical form) does not have to be *logical* (for example, in the argument 'This person is pregnant, consequently this person is a woman'). In other words, the meaning postulates formulated about expressions of natural language between which a definite semantic connection is established intuitively are at the same time given a role of determining a definite kind or level of general significance that is less rigid than logical correctness (or validity). Only on that plane is it possible to treat the analogy of the theory of meaning postulates to a theory determining the concept of logical consequence. For all that, however, the following question, essential for examining the possibility of constructing a semantic theory of natural language, remains unanswered: namely, *what is the set of meaning postulates* needed to explicate the semantic relations of expressions of the language? I.e. *what constitutes the criterion and limit* of assigning of one field of knowledge or another, as an aggregate of meaning postulates, to the 'semantics of language'?

In the interpretative theory the empirical adequacy of ascribing a semantic representation to a linguistic expression is determined by how far it is effective as regards predicting the semantic properties and relations of the linguistic expressions. These predictions may be confirmed or refuted, according to the theory, by appealing to the speaker's linguistic intuition. But, because the theory has the job of explaining the consequences that may follow from belief sentences, and is itself a theory of speaker's competence and not of their linguistic performance (the concept of linguistic competence being treated, moreover, as a *theoretical construct* similarly to Carnap's concept of belief), it is precisely by reference to the theory that the problem of the substitutivity of linguistic expressions in belief sentences is 'resolved'. In other words, if expressions '*p*' and '*q*' are synonyms according to the theory, i.e. one and the same semantic representation is ascribed to them in the theory, then this fact relates to speakers' *linguistic competence*. Then,

as with Carnap, *it is simply postulated* that 'John believes that p' follows from 'John believes that q', and the given context of belief (to use Carnap's terminology) is taken as 'transparent' ,i.e. as permitting the replacement of one expression by another.

Just as with the treatment of belief as a theoretical construct no attention is paid to facts that do not accord with the general attitude expressed in the form 'If *a* believes that *p*, then *a* believes that q', when 'p' and 'q' are intensionally isomorphic, so facts contradicting the adopted scheme, when 'p' and 'q' are expressions of natural language, are taken as irrelevant in the interpretative theory of semantics. This theory is regarded as *valid for all speakers of the language because* it is a theory of an ideal speaker, knowledge of whom is determined by the system of the language and consequently contains knowledge of all the semantic relations in it. The problem of the substitutivity of linguistic expressions in belief sentences (or rather of general as disfinct from singular terms) is 'resolved' in this conception by reference to this theory.

Because the 'semantics of language' in Katz's understanding excludes any extralinguistic knowledge, proper names are naturally not a part of it. He defends a thesis, in full accordance with this understanding of the 'semantics of language', that proper names do not have meaning in natural language: expressions not characterised by semantic properties and relations cannot have meaning.[15] And vice versa. Since proper names do not have meaning in natural language they do not enter into any semantic relations whatsoever, including a relation of semantic consequence. They therefore also do not enter the vocabulary of a semantic component of natural language that contains a semantic representation of other lexical formatives of the language. A belief context is considered 'opaque' in regard to such expressions, and the substitution of one proper name for another in such a context is considered impermissible. There is a clear discrepancy in that with speakers' intuition.

The approach in which the problem of the reference of linguistic expressions is treated as inessential for construct-

ing a semantic theory of natural language leads to an inadequate solution of the problem of the substitutivity of proper names in a belief context, which is an essential matter from the standpoint of explaining the link of thought, language, and reality, and also for explicating the functions of natural language in the construction of a conceptual picture of the world. Refusal to treat the relation of linguistic expressions to the objects of the world designated by them as essential for building a semantic theory (exclusion of examination of the aspect of reference in the proper sense as extralinguistic according to this understanding of the 'semantics of language') removes the question of the substitutivity of singular terms in belief sentences and so predetermines the possibilities of this semantic conception, thus demonstrating the groundlessness of its claims to explain speakers' understanding of their language.

4. The Logical Form of Belief Sentences: Generative and Referential Analysis

Explication of the problem of coreference of singular terms within the limits envisaged by the generative theory of semantics is directly related with this theory's fundamental postulate, which affirms the identity of deep structure (in the accepted understanding of the term) and the logical form of a sentence of natural language. The problem of analysis of the context of belief is thus reduced to examination of the possibility of affirming the identity of the deep (basic) structure and logical form of belief sentences. This theory treats deep structure as containing a full semantic representation of the sentence, and the sentence-object of the belief (for example 'Smith is a spy') as syntactically embedded in the belief sentence ('John believes that Smith is a spy').

The inapplicability of the law of substitutivity of identity in a belief sentence is explained in the theory of generative semantics by treating proper names (phrases) on the analogy of quantifier expressions in the logical understanding in the Russellian tradition of the analysis of ambiguity (as having *a definite scope* in deep structure).[16]

Thus, if 'John believes that Smith is a spy' is understood (in quasilogical notation) as 'John believes ((Smith *x*) (x is a spy))', the law concerned is not applicable in contrast to the understanding '(Smith x) (John believes ((x is a spy))'. Starting from the idea that adequate analysis of logical form presupposes a possibility to characterise it in truth terms, it is suggested that the identity of the deep structure of a belief sentence with its logical form ensures adequate analysis of it in truth terms. Then either the sentence embedded in the deep structure, or the proposition it expresses, is regarded as the object of belief. The embedded sentence and its components are treated as retaining their ordinary meaning; the sentence treated as syntactically embedded is simultaneously semantically embedded in the deep structure of the belief sentence.

The problem of explicating a belief sentence is thus reduced in the theory of generative semantics to a matter of ascribing different deep structures to such a sentence as a semantic representation of it, and to indicating the different possibilities of its interpretation (one of these interpretations not allowing, in contrast to the other, the application of the law of the substitutivity by identity). But the fundamental problem we have constantly to deal with, and which the speaker of a language resolves, is left unexplained here, namely the application of this law in those cases which the theory qualifies as 'blocked', i.e. when the law is applied in relation to a given speaker's conceptual system. But to assume this law as valid in relation to speakers' conceptual systems is necessary if allowance is made for the rational character of these systems.

In the conceptions of referential semantics that employ the idea of possible worlds the adequacy of the explication of the substitutivity of terms, including singular ones, is determined by the status accorded in them to the *concept of a possible world* and correspondingly of a *possible object*. In the conceptions of referential semantics presented above, with the exception of Hintikka's approach, a definite, constant, or absolute universe of possible objects is postulated, which is the range of values of constant functions as the meanings of singular terms; as Hintikka puts

it. 'one begins by postulating a fixed supply of prefabricated individuals'.[17] Since rigid designators are subordinated to the law of the substitutivity of identity in Kripke's approach, and guarantee an existential generalisation even in modal contexts, their relative positions are taken as referential ('referentially transparent') in any context.

It is easy to see how close this position of Kripke is to the interpretation of the semantics of demonstrative pronouns presented in several of Kaplan's works.[18] When constructing this semantics, Kaplan, following Russell's early work, employed the concept of a *singular proposition* (that contains a concrete individual as its constituent, indicated by a logically proper name) as an object of a belief attitude. The individual treated in such a proposition is supposed to be *given directly*, and not as such-and-such, not as the referent of a concept related to this object.

Thus the object of the belief sentence 'Bert believes that Russell is 90 years old' is taken as a singular proposition represented by a structure [Russell, 'is ninety years old'], in which the first component of the proposition is an individual, not an individual concept as the meaning of the name 'Russell', and the second component is a property. According to Kaplan, this singular proposition is expressed by any of the following sentences: (a) 'This man (referring to Russell as he ordinarily appears) is 90 years old'; (b) 'This man (referring to Russell in the guise of Charlie Chaplin) is 90 years old'; (c) 'Bertrand Russell is 90 years old'. Thus, whatever the concept related to the individual concerned in the belief sentence, i.e. however it is presented to the subject of the belief, the object of the belief is assumed to be a singular (*de re*) proposition.

A more refined approach, and one more adequate from the intuitive angle, reviving the phenomenological-psychological tradition of the analysis of perception situations, has been formulated by David Smith, rejecting Kaplan's analysis and thereby differentiating (1) the object of the *mental act* or propositional attitude, and (2) its *content*. The first is what the act or attitude is directed to, i.e. a definite (real or possible) state of affairs. It corresponds to the Russell-Kaplan understanding of 'proposition'. The sec-

ond is that which is the definite phenomneological-psychological form of the act or attitude as a mode of presenting the object concerned in the act or attitude. This is *a thought* or mental-structure embodying the form of the act or attitude. It is thus the content, and not the object of belief, that is what is expressed as the meaning of the sentence.

Say I utter a sentence 'He (the one who is standing in the shadow across the street) is a spy'. Then a singular proposition consisting of the individual concerned, characterised by the property "is a spy', functions as the object of the judgment made by means of this sentence. But the content of my judgment is a phenomenological structure constituted by a definite 'demonstratively individualised meaning' that embodies the form of my perception and by the general concept (in contrast to the property) 'of being a spy'. In other words, the content of my judgment is a *thought* about a definite individual who has a definite property, which is not of course identical with the *individual* who has this property. Different judgments can therefore share an *identical content* but have *different objects.*

The treatment of propositions (in Kaplan's understanding), with this approach, as objects of belief, is of course homage to an objectivised 'semantics of language'. But the singling out of a special aspect of the content of an act or attitude (although treated as something common for different speakers) is already a step in a constructive direction. There is no such thing in Kaplan's semantics. The problem of the substitutivity of coreferential terms does not arise in this semantics as in Kripke's. When we are speaking of the solution of this problem in regard to natural language, however, the solution can only be considered adequate for an objectivistically understood absolutised 'semantics of language', corresponding to the concept of an ideal speaker who 'knows' the real referents of singular terms.

Similarly singular terms are 'logically determined' by an appropriately considered interpretation in Montague's semantics: their extensions are represented as *invariant* in regard to possible worlds and their contexts of use, and as in-

dependent of propositional attitudes, in particular of speakers' belief attitude. Thus if in semantic theories developed in a transformational-generative analysis one postulates a universe of meanings as given and in that sense as absolute for all speakers of the language, the set of referents of singular terms gets such a status of an absolute set in the referential theories I have in mind here.

Thus like the problem of establishing the *semantic identity of general terms* of natural language does not arise in the first case (it also does not arise, incidentally, in Lewis's referential conception in which the identity of intensions that constitute the terminal chain of the base structure is treated as a necessary condition of the identity of meanings, or synonymy), so the problem of establishing the *identity of the objects* designated by definite singular terms of natural language does not arise in the second case. It is simply postulated that the same objects are the referents of the corresponding singular terms in each possible world. Adoption of an absolute 'semantics of language' (whether on the plane of 'pure' meanings ascribed to expressions of natural language, or on the plane of the objects designated by them) makes the substitutivity of linguistic expressions in a belief context trivial. It is 'resolved' in one case (exclusively in relation to common terms) by reference to the competence of linguistically omniscient speakers and in the other by reference to the predetermined character of an absolute universe of objects comparable with the 'semantics of language', irrespective of its speakers' beliefs.

A consequence of the latter approach is that any object belonging to any world is connected by a transworld line with a definite object from any other world; any object is fully determined in all these worlds. Therefore, when Montague was examining the concept of logical consequence, he preferred to qualify sentences like 'John believes that p' and 'John believes that q' as synonymous and logically equivalent, if 'p' and 'q' are unequivocal and logically equivalent, that is to say, if they are true in all possible worlds, consequently, they expressed one and the same proposition and are therefore interchangeable by truth-value in all their contexts of use.[19] In this model, as Hintikka has

shown,[20] statements like 'John knows in regard to every existing individual who he is, (formally: (x) $((\exists y)$ $(x = y)$ $\rightarrow (\exists y)(y = x\&$ $(\exists z))$ John knows that $(y = z)))$, or 'Bill knows who every individual known to John is' (in a *de re* interpretation, i.e. when it is a matter of knowledge of a definite, concrete individual) must be considered as true always. Such an interpretation is intuitively clearly unacceptable, however, in most cases.

It should be noted that Montague did not in general reject the possibility of alternative approaches consisting in a modification of semantic theory with which it does not implicate a need to adopt any logical consequences of belief. But these amendments simply lead, as in the generative analysis examined above, to a 'blocking' of undesirable implications, and in the end to another extreme, i.e. consideration of the context of belief as generating 'opacity' of the underlying constructions because of the special intensional status ascribed to them. Thus, by developing in terms of modern intensional analysis Frege's classical idea that the singular terms found in a belief context have meaning as their referents and not—as is usual—the object ascribed to them, Montague treated the expression 'that' in introducing a sentence-belief object as an operator forming the names of the intensions of the expressions contained in the underlying part.[21] Alternatively the individual expressions are treated as designating respective individual concepts or properties of the properties of individual concepts.[22] These modifications, however, cannot give adequate (to speakers intuition) criteria for transformations of belief sentences and therefore cannot serve as an explanatory model of their logical 'behaviour'.

Consequently, one of the most complicated problems of analysis (that of identifying objects which a speaker constantly has to cope with during conceptual mastering of the world and communication, in particular when establishing the connected nature of reasoning about some real or possible objects, a problem that should receive adequate explication in a theory that models a speaker's linguistic intuition) is not resolved but simply avoided. The formal elegance of the model is retained but not its adequacy.

Such an unrelativised in regard to speakers' propositional attitudes understanding of possible objects and worlds as an initially given set adds weight to Quine's critique of the use of concepts of possible worlds and individuals in a quantified context, in other words to the critique of quantification of logical modalities. Relativisation of these concepts means that it is not alternative possible worlds that must be examined in general, but alternatives relative to a definite speaker's propositional attitudes (in contrast to the case of the logical necessity and possibility, in which all worlds are treated as on a par from the angle of alternativeness). Study of the concept of belief is also, therefore, considered as, from the philosophical standpoint, the most important use of the relation of alternativeness.[23]

5. Belief Context and the Relativising of Intensional Concepts

The relativising we are concerned with here consists, according to Hintikka[24] in (1) the attribution of a propositional attitude to a speaker signifying the division of all possible worlds (which can be discerned by the linguistic means employed for ascribing them) into two sets, viz., those that are *compatible with the attitude being examined* and those that are *not compatible with it*. Thus, worlds alternative to world *W* relative to a definite speaker are treated as worlds compatible with everything that this individual believes in world *W*. Consequently to know what he believes in the real world, for example, is to know which possible states, or courses of events, are ruled out by his beliefs, and which are compatible with them.

(2) The individual himself is treated here as one who is in a one-to-one correlation with a definite world line passing through several possible worlds and exercising the function of a cross-identification of the individual. The latter is equivalent to treating the world line as a certain individuating function selecting a definite member of the corresponding universe from a number of possible worlds as the 'embodiment' or projection of this individual in a given possible world. These functions can be partial: a definite

object existing in one world may not exist in another. Thus, if the individuating function has no value in the actual world, the world line is only a possible individual.

The point that the set of individuating functions is not given once and forever, but is treated in regard to a certain set of possible worlds, is essential here. In other words, world lines are presumed to be functionally dependent on the possible worlds they connect. Extending them to another set of possible worlds may not be feasible because they are drawn on the basis of the similarity between the worlds and regularities that characterise each of them, which may not be the case when a broader set of possible worlds is being considered.

No similarity, for instance, may be discoverable between logically possible worlds in the case of logical modalities. The drawing of world lines by such criteria as continuity and similarity becomes impossible in such a case. At the same time the difference between what is a logically possible would and what a speaker supposes to be possible is obvious when we examine a belief attitude in relation to logical equivalence. Thus, although '*p*' and '*q*' may be logically equivalent, i.e. the possibilities, relative to the actual world, assumed or, vice versa, excluded by them are one and the same, the sentences '*a* believes that *p*' and '*a* believes that *q*' may not be equivalent.

Individuating functions relativised in regard to a definite set of possible worlds, and not the 'individual concepts' of an absolute referential semantics, are the entities subject to (according to Hintikka) quantification in the case of propositional attitudes. It is in the light of an understanding of the relativity of individuating functions that the difficulties entailed by use of the classic principle of the substitutivity of identity in the context of a propositional attitude are being explained. Two singular terms '*a*' and '*b*', for instance, can refer to one and the same individual in the actual world (formally: $f(\text{'}a\text{'}, w_0) = f(\text{'}b\text{'}, w_0)$) in which f is an individuating function, and w_0 is the actual world). But the same terms may not refer to the same individual in a certain alternative possible world (i.e. there may be $f(\text{'}a\text{'}, w_1) \neq f(\text{'}b\text{'}, w_1)$ in which w_1 is one of the

alternative possible worlds in relation to w_0 and from the standpoint of a definite speaker's propositional attitude.

The possibility of asserting this indentity, and consequently of the substitutivity of the corresponding singular terms in the context of the propositional attitude is not determined by their rigidity, as in Kripke's semantics, and not by the absolutely constant character of the corresponding individual function, as in Montague's semantics, it is determined by knowledge of what is taking place in worlds alternative to the real world and from the standpoint of a definite speaker's propositional attitude. (Thus, the possibility of passing from the statement 'Jonas believes his neighbour is at home'—with a *de re* interpretation of the description 'his neighbour'—to 'Jonas believes Petras's father is at home' is not governed by the truth of the statement 'Jonas believes his neighbour is Petras's father'.) Consequently application of the law of the substitutivity of identity in a belief context requires the use of an additional premiss related *(from my point of view)* to the speaker's conceptual system.

A methodologically important conclusion follows from this in regard to theories of natural language that resort to use of the concept of deep structure: namely, when we speak of the deep structure of a belief sentence and the possibility of substituting a singular term in it. The deep structure must be treated as *relative to the speaker's information about the world.* The concept of a *universal* deep structure loses sense in such a case. Just as the conclusion to the effect that the 'behaviour' of a singular term depends on the context in which the term is used, it may be that analysis of the possibilities of substitution a singular term in a belief context requires revision of Frege's understanding of the meaning of a sentence (adopted in the absolute conceptions of the 'semantics of language') as a function of the meaning of its parts. This is why the identity of the meanings of singular terms (in the Frege-Carnap approach), or of the intensions of individual expressions in the conceptions of referential semantics, cannot be treated as a necessary condition for substituting singular terms, if this identity is treated absolutely, i.e. to the effect (in terms of the functional approach to meaning and the semantics of

possible worlds) that functions that pick out the referents of respective singular terms, i.e. functions from possible worlds to their members, coincide in the whole set of possible worlds.

The truth of '*a* believes that $b = c$' in world *W* requires only, according to Hintikka's theory, that these functions coincide in an essentially narrower set of alternatives of world *W*. The functions associated with the relevant terms must coincide in all possible worlds that are considered in the belief sentence. It is thus a matter not simply of the identity of the meanings of the relevant singular terms but of functions limited by the relevant set of arguments, i.e. related to a definite subset of all possible worlds, and precisely of worlds compatible with everything the speaker believes. Individuating functions are consequently a subset of the set of all the individual concepts.

Both the formulation of the truth conditions of sentences containing propositional attitudes and analysis of the meaning of singular terms presuppose quantification over a set of possible worlds and individuating functions. The main role of these functions is to yield entities over which quantified variables 'run' in a modal context, i.e. when quantification is realised across a modal context. But, in conformity with Hintikka's conception, the application of Quine's criterion that quantification over definite objects entails their ontological acceptance must be considered not in terms of the ontological but the *ideological acceptance of possible worlds* and individuating functions; talk about ontological assumptions makes sense only when it concerns quantification over objects belonging to one and the same world.

The necessity is thus confirmed of making a distinction between definite objects of reference on the one hand and definite aspects of our referential apparatus through which reference is made to these objects on the other hand, rather than between two types of object. Individuating functions are therefore not treated as members of some possible world; not only is the function of the object's assignment ascribed to them but also the function of individuating it. When a certain singular term refers to a definite object,

cases both of individuation without reference (in the actual world) and reference without individuation (formally: $(\exists x)\ B_a\ (x = b) \ \&\ \sim (\exists x)\ (x = b)$ *and* $(\exists x)\ (x = b) \ \&\ \sim (\exists x)\ B_n\ (x = b)$ are possible in Hintikka's evaluation.[25] Assumption of the existence of 'possible worlds' and individuating functions thus signifies that they are *conceptual means employed by speakers during cognition of the world and interaction with it* rather than that they are definite natural entities.

With that approach quantification over world lines is given a normal, or *objectual* meaning as Quine expresses it,[26] by which one has to do with ordinary singular terms referring in an ordinary way to ordinary entities. The sole novelty of this approach is the treatment of these entities as members of certain possible situations or courses of events. Hintikka speaks of it as follows:

> For suppose that we start out by trying to quantify over actually existing individuals only. But in a suitable modal or epistemic context you are inevitably considering these concrete individuals also *qua* inhabitants of certain alternative worlds. The upshot is precisely the same thing as quantifying over those bits and pieces of world lines which span these alternatives plus the actual world... Conversely, suppose that we start out by quantifying over certain world lines. Suppose further that we happen to consider them in a context in which only their nodes in the actual world matters, that is in a context in which the question of cross-identification does not arise... It turns out that the outcome is precisely the usual traditional quantification over actually existing individuals.[27]

It should be noted in general that the complexity of the matter being examined demands further search for an adequate analysis of it, especially in connection with the ontological problems of accepting different methods of tracing individuals across possible worlds.[28] This does not, however, diminish this conception's positive role in the relevant aspect, namely from the standpoint of the relationship of language and the conceptual system.

Although Hintikka notes that a set of individuating functions is not given once and forever and that 'the world lines of individuals' are determined by the speakers themselves rather than by 'immutable laws of logic', he considered them

to be drawn not by each individual alone but by tacit collective decision embodied in the grammar and semantics of our language'.[29] These world lines are 'due to our (i.e. the language community's) constitutive decisions',[30] and are coded in the conceptual rules of the whole language community. From my standpoint the sole possible interpretation of these considerations that save one from inevitably falling into a contradiction (because of the assertion on the one hand of the relativity of individuating functions, and on the other of the 'semantics of language' as the embodiment of the 'collective decision' of the language community), calls for an essential change in the understanding of the 'semantics of language' itself. It must then be treated as part of individual conceptual systems and not as an autonomous entity embodying the tacit conventions of the language community.

If the semantics of belief is relativised in regard to speakers without systematic examination of the structures of the conceptual systems as information a speaker has about the world, it leads to an absolutising of the requirement of compatibility of the speaker's beliefs, and to unacceptable consequences stemming from that. At the same time such a 'half-and-half' relativisation makes understanding of the objects of belief themselves as semantic objects indeterminate. It leads to opposing the *semantic* (linguistically determined) aspects of the problematic of belief and the *pragmatic* aspects (related to the information a speaker has about the world), of '*semantic*' and '*non-semantic*' (pragmatic) information, and of '*objective*' and '*subjective*' meanings, propositions, etc. The last-named are treated, as a rule, as not amenable to logical description.

Saarinen, for example, suggests (starting from delimitation of the two methods of cross-identification of objects—descriptive and perceptual—suggested by Hintikka) that propositional attitudes, in particular attitudes of belief, do not have a definite semantics in the sense of truth conditions.[31] The attribution of such an attitude to a speaker is considered a matter of *pragmatics*, and not of semantics. Although it is suggested that the problem of identifying objects is a genuine epistemic one, the semantic significance

of the problem is nevertheless doubted. Saarinen's argument is built on the discussion of the belief sentences cited above, viz., 'Bert believes that Russell is 90 years old' or in the form more clearly revealing the quantification in the belief context ('Bert believes about Russell that he is 90 years old'). As an empirical premiss it is suggested that Bert knows a lot about Russell, including his biography, but has never seen him, and therefore, on meeting him, does not recognise him; he believes that this man (whom he is meeting) cannot be 90 years old. Therefore the given sentence is presumed to be ambiguous, which agrees with intuition, i.e. is true in one interpretation or reading and false in another.

Because of the delimitation of Hintikka's two methods of cross-identification, these interpretations get the following formal representations: (A) $Ex)$ $(x = \text{Russell} \ \& \ B_b$ $(x$ 90 years old) and (B) $(\exists x)$ $(x = \text{Russell} \ \& \ B_b$ $(x$ 90 years old), in which 'Ex' is a quantifier, corresponding to the descriptive mode of identification, and '$\exists x$' is a quantifier of perceptual identification. In the situation under study (A) is true and (B) is false. These two readings, from Saarinen's point of view, are proper readings of the sentence concerned. Or rather they represent two ways of reading it, each of which embodies an infinite set of 'pseudoreadings' of the belief sentence, depending on the context (or generated by the context) of its use, and on the set of concrete means by which the object can be referred to. The proper-readings of sentence S are the different ways of understanding S that would be assimilated by all competent speakers of the language, or all the different means of interpreting S that would be ascribed to S by an adequate semantic theory of natural language.

Pseudoreadings of S are all the different understandings of S that differ intuitively by truth-value (at least in some contexts). With Saarinen's approach, which is a kind of compromise between Kripke's (Kaplan's, and others) and Hintikka's, there is no contradiction in stating that the sentences 'This man (pointing to Russell in his ordinary clothes) is 90 years old' and 'This man (pointing to Russell in the guise of Charlie Chaplin) is 90 years old', for

example, are semantically indistinguishable,[32] although they are not such pragmatically, i.e. when they are put into a definite context of belief, as in 'Bert believes this man (pointing to Russell in Chairlie Chaplin's guise) is 90 years old'.

The difference between the last two sentences, from this standpoint, has to be described in *pragmatic* terms, but it has no relation to the semantics of sentences-objects of belief. The case of the substitutivity of general terms is treated similarly; it is considered that the sentences 'Sally is a doctor' and 'Sally is a physician', for example, are synonymous, although it is assumed that the sentences 'Bill believes that Sally is a doctor' and 'Bill believes that Sally is a physician' may differ in truth-value. Finally, even in regard to the simplest logical conclusions, for example, if '*q*' follows from '*p*', it is supposed that the concept of logical conclusion is not applicable to the pair of sentences 'Bert believes that *p*' and 'Bert believes that *q*', because such a conclusion is not based on the syntactic (logical) form of these sentences. The conclusion is not drawn on the basis that when one sentence is true the other is also true. That cannot be because the individual may believe that *p* and not believe that *q*. From that point of view a sentence with the form '*a* believes that *q*' does not have its own logic, and the set of logical consequences of such sentences is not determinate.

It is proposed to describe the pragmatic difference of belief sentences (with affirmation of the semantic indistinguishability of the corresponding sentences-objects of belief) in terms of the sentence's 'information content'. The 'information content' of 'This is a Finn', for instance, boils down to this, that the person in our field of perception, as a person possessing definite perceptible characteristics, is a Finn. The difference of the belief attitudes boils down to a difference in the information contents of the respective belief sentences. It is therefore considered important to construct a theory of the 'information content' of belief attitude in order to explain quantification in a belief context, and to construct a theory of the understanding of linguistic expressions. One cannot help seeing an analogy here of the *linguistically determined* and *pragmatic* aspects of

the semantics of linguistic constructions to the dichotomy drawn by Katz of *linguistic competence* and *performance* corresponding to *semantic* and *non-semantic* information.

On a broader plane the absolutising of such a demarcation is the consequence of treating the semantic properties and relations of linguistic expressions outside their systemic connections within definite conceptual systems in which, and only in which, they can receive, and do receive, one or another interpretation. Their abstraction from these systems, on the contrary, makes the different aspects of the understanding of linguistic expressions incompatible with one another, or at least in relation to one another (although they are mutually related *in* the conceptual system). The question of the construction of a logical theory of belief sentences therefore remains *open* for the approaches discussed, i.e. it is either decided trivially at the level of intensionalistically or referentially understood 'semantics of language' (which means, as I have shown, not solution of the real problem but avoidance of it), or its unresolvability in principle at the level of the idiosyncracies of the use of natural language is pointed out (idiosyncracies that are not amenable to systematisation or to adequate logical description). Neither point of view can be considered satisfactory.

6. Belief and the Individual Conceptual System

When the problem of belief is analysed at the level of the intensionalistically or referentially understood 'semantics of language', it is not satisfactory (as I have shown above) from either the descriptive or the explanatory standpoint. The logical aspect of this problem (which consists in the establishing criteria of the substitutivity of expressions, and in obtaining possible logical consequences from sentences expressing a speaker's belief) leads, moreover, to examination of the important *epistemological* problematic of the relation of the *subjective* and *objective* in cognition, of *belief* and *knowledge* and of the transition from the one to the other. At the same time, a logical so-

lution also proves impossible without an epistemologically satisfactory approach to this problem.

It therefore seems no accident to me that semantic theories discussed above do not provide an adequate solution of the problem. As analysis shows, they simply *cannot* provide such an answer because they are essentially theories of the 'semantics of language' incapable—because of their fundamental methodological precepts—of embracing the factor of the speaker's conceptual system, which reflects his cognitive experience in all its richness and variety.

Because analysis of the problem of belief sentences presents requirements of epistemological and logical adequacy, I shall try to satisfy both of these needs as far as possible in the exposition that follows.

A prerequisite of the approach I propose to investigation of the problem of belief is not to counterpose the 'semantics of language' and a speaker's knowledge of the world as something amenable and not amenable respectively to systematic description, and not to reduce belief to some sort of theoretical construct, but *to look for a theoretically and methodologically substantiated synthesis of them* that leads to the solution of the problem. I shall treat the very structure of speakers' conceptual systems as the basis of this synthesis. In other words, I shall start from the point that the 'semantics of language' and speakers' notions about the world (which presumably belong to the pragmatics of language) *are an abstraction of definite aspects of conceptual systems, absolutising of which is what engenders difficulties in analysis of the belief problem.*

To construct an adequate understanding of the structure of belief I shall start from the point that the semantics of belief sentences, or rather of those parts of them that express the belief attitude, is evidence of an immanent link between these sentences and definite conceptual systems, and the belief context is the best evidence of sentences—objects of belief appertainance to given systems. This last circumstance will serve as the basis for constructing an argument that any statement about the world presupposes a definite context of belief. This should show the importance of analysing the context of belief and the need to allow for

the conceptual system in an adequate logical analysis of the belief attitude itself, and so in examination of any statements about the world.

By a conceptual system (as I have already said above), I understand a system of concepts that represent information (true or false) an individual bearer of such a system has about the real or possible state of things in the world (what he believes, knows, supposes, imagines, etc., about objects of the world in the broadest possible construal of the term 'object'). More rigorously such a concept may be regarded as an intensional function from a world to its objects. The construction of a conceptual system is, as I have already remarked, at the same time the construction of a concept-function embodying a choice, a preference given in the system to a definite concept as the *speaker's belief* —whatever aspect of perception and cognition of the world it belongs to. The set of such singled-out interpretations connected one with another and with the whole conceptual system forms the speaker's '*system of beliefs*' or '*conceptual picture of the world*'.

Thus, when, in a set of concepts C_{Ind} that form a conceptual system CS_{Ind}, a subset C^*_{Ind} is singled out that is a set of concepts or conceptual structures linked by a relation of interpretation with the other concepts and conceptual structures of C_{Ind} and which represent information Inf^*_{Ind} that bearer of CS_{Ind} holds to be true about a given world W, then this information constitutes *an individual system of beliefs* (formally: $CS^*_{Ind} = \{Inf_{Ind} \mid Inf_{Ind} \subset C_{Ind} \,\&\, HT\,(Ind, Inf^*_{Ind})\}$, in which HT is the operator 'holds to be true', and Ind is the individual). Then, if 'p' is an expression of the language, and c_p is a concept or conceptual structure correlatable with 'p', then $HT\,(Ind, c_p)$ iff $c_p \in C^*_{Ind}$, i.e. if and only if the concept concerned belongs to the set of concepts forming the speaker's system of beliefs CS^*_{Ind}

What I have said provides grounds for treating $HT\,(Ind, c_p)$ as the *conceptual form* of belief sentences as an analogue of what is called the '*logical form*' of belief sentences $B\,(Ind, p)$, where B is the operator 'believes'. The relationship of $HT\,(Ind, c_p)$ and $B\,(Ind, p)$ makes it pos-

sible to determine the predicate 'believes' through the predicate 'holds to be true', i.e. to construct a definition (D_1): $HT(Ind, c_p)^{def} = B(Ind, p)$—and in that sense to say that $B(Ind,p)$, iff $p \in CS^*_{Ind}$ i.e. *to be an object of the speaker's belief is to belong* to a definite conceptual system CS^*_{Ind} and conversely (here by $p \in CS^*_{Ind}$ I have in mind $c_p \in CS^*_{Ind}$, i.e. a definite concept correlated with 'p' and belonging to CS^*_{Ind}). In that way the thesis is substantiated that any statement about the world presupposes a definite context of belief and in that sense it has an essentially *intensional* character, which in turn presupposes examination of the degree of this intensionality—from the *belief* to the *knowledge* of the bearer of the conceptual system.

To define the truth conditions of belief sentences one can employ a Hintikka-type model containing possible worlds and a relation of alternativeness between them. In terms of the semantics of possible worlds relativised in relation to a speaker's propositional attitudes one may suggest that the following definition of truth (D_2): $B(Ind, p)$ is true in a possible world w iff 'p' is true in all possible worlds w_i connected with world w by a relevant relation of alternativity R_B. Here by R_B is understood a relation connecting the possible world w with those possible worlds w_i that are compatible with what *Ind* believes in world w. The intuitive sense of this definition comes down to the following: I know what an individual believes if and only if I can distinguish the possible worlds that are compatible with what he believes from those that are incompatible with what he believes.

Starting from the truth definition for $B(Ind, p)$ as the basic form of belief sentences, respective definitions can be constructed, as well, for other forms of belief sentences. Thus, $B(Ind,p) \rightarrow B(Ind,q)$ is true in a possible world w iff worlds compatible with 'p' as the object of *Ind*'s belief in world w are worlds compatible with 'q' as the object of *Ind*'s belief in world w. According to the interpretation proposed, $\sim B(a,p)$ signifies that $p \in CS^*_a$, in terms of the semantics of 'possible worlds' this signifies that there is no 'p' in at least one of the worlds compatible with what a believes.

The definition (D_1), and the presupposed by it reference to the speaker's system of beliefs CS^*_{Ind} make it possible to characterise the semantics of the *B*-operator in several fundamental features as its 'logic of behaviour'. Thus, the syntactically possible iteration of the *B*-operator $B(Ind, B\ Ind, P)$ in which '$B(Ind, p)$' signifies, according to (D_1), membership of 'p' in the belief system CS^*_{Ind} is semantically *interpretable* with an *identical* subject of belief, as a case of metabelief, i.e. as the subject's belief about the availability of 'p' in his system of beliefs. Examination of these meta-attitudes leads to analysis of the 'transparency' of the system of beliefs for subjects of belief themselves. The point concerns the treatment of *open, concealed,* and *other modalities of belief* represented by these and other forms, like $\sim B(Ind, B(Ind, p))$, $B(Ind, \sim B(Ind, p))$ etc., that say what 'sectors' or 'levels' of the conceptual system accessible to or, on the contrary, *inaccessible* to the consciousness of a bearer of the system, are controlled or, on the contrary, *not controlled* by him.

Repetition of a *B-operator* with different subjects of belief, for example $B(b, B(a, p))$, semantically may be interpreted as attribution of $B(a,p)$ to the system of beliefs CS^*_b, i.e. as $B(a, p) \in CS^*_b$ in other words as the belief of subject b that $p \in CS^*_a$. In terms of the semantics of possible worlds relativised in relation to a speaker it is a matter of doxastic *a*-alternatives considered in relation to doxastic *b*-alternatives.

$\sim B(a,p) \rightarrow B(a, \sim p)$, however, cannot be treated as one of the possible rules of a *B*-operator since, if $p \sim \in CS^*_a$ then it is not necessary that $\sim p \in CS^*_a$; obviously $B(a, p)$ v $B(a, \sim p)$ is also not tenable. One should examine the opposite of the pseudorule cited, namely $B(a, \sim p) \rightarrow \sim B(a, p)$ which expresses the requirement of compatibility of the speaker's beliefs. This is the case not only in the absolute conception of the semantics of propositional attitudes (as, for example, with Montague), but also (in a modified version) in Hintikka's conception relativised in relation to a speaker of the language.

The requirement of compatibility of beliefs is motivated by its being impossible to construct a formal system that

allows for incompatible beliefs in a speaker without assuming the possibility of ascribing *any* belief to him (since anything you like follows from the assumption of the contradiction, according to the rules of elementary logic). The requirement is based on an understanding that the logical consequences of speaker's beliefs are his own beliefs. That is this requirement is based on the invariance of belief relative to logical equivalence and logical implication. This invariance is expressed by affirmation of the validity of the rules of inference from $p \leftrightarrow q$ to $B(Ind, p) \leftrightarrow B(Ind, q)$ and from $p \rightarrow q$ to $B(Ind\ p) \rightarrow B(Ind,\ q)$, respectively where '$\rightarrow$' symbolises logical consequence.

From such an absolutised point of view (i.e. essentially from the standpoint of an ideal logician as a speaker of the language) one cannot admit the existence in him of incompatible beliefs. Real speakers, however, may and often do have incompatible beliefs. They simply may not know that the beliefs they have in their conceptual system are incompatible, i.e. the statement '$B(Ind,\ p) \& (p \rightarrow \sim q) \rightarrow \sim B(Ind,\ q)$' in which '$\sim B(Ind,\ q)$' — 'It is not true that *Ind* believes that *q*'—may be false. Facts are known even in the history of science of operating with what are subsequently found to be contradictory concepts (the concept of set in the 'naive theory of sets', for example, was such), not to mention that it is easy to construct a system of premisses for a statement, whose incompatibility would not be clear, and would only come out during logical deduction of the affirmed conclusion[33]. Finally, the various examples of operating with contradictory statements formulated in ordinary language are evidence of the unsatisfactory nature of the above-mentioned deductive principles for logical analysis of a propositional attitude of belief. This unsatisfactoriness increases in particular when the concept of *logical form* is revised (extended)—as in modern formal linguistic theories of natural language.

Hintikka has proposed 'quantificational depth' of a sentence as a factor limiting a speaker's *omniscience*, defining 'depth' in terms of the sequence of quantifiers embodied one into another in sentences of first order logic with the addition of epistemic operators such as 'believes that'; 'Knows

that'. Such sentences are treated as logical paraphrases of corresponding sentences of natural languages. Since quantifiers determine the set of individuals who are treated relative to one another in the sentence, maximum complexity of the configuration of the individuals considered in the sentence is then understood as the quantificational depth of the sentence. He, consequently, proposed treating this complexity as a fundamental factor limiting the speaker's 'grasp' of the logical relations between sentences; the deeper the sentence contained in the conclusion the more difficult is the speaker's understanding of this conclusion.

A belief is retained, it is suggesed, insofar as the quantificational depth of a sentence is retained when deducing its consequences. If the quantificational depth is increased when consequences are being drawn from a given sentence as object of belief, one cannot expect the belief to be retained. Consequently, for an adequate explication of the understanding of logical implication it is only necessary to limit the effectiveness of the above-mentional rule of inference in respect of those cases in which implication from 'p' to 'q' can be proved without exceeding the depth of 'p'. Since such a restriction is relative to the method of proof, and this method consists in the reduction of sentences, by the technique developed by Hintikka, to the 'normal distributive form' and elimination of the trivially incompatible components,[34] the restriction concerned boils down to a requirement that '$p \rightarrow q$' be a superficial tautology at the depth of 'p'. It is therefore siggested that understanding a sentence cannot be identified with grasping of all its logical consequences; in the same way one can understand the axioms of elementary geometry and yet not know all of its theorems.

To understand a first order sentence, according to Hintikka, is to know what series of individuals can be encountered and in what combinations, if that sentence is true. But this means that whoever believes that p, and understands 'p', will believe that q, where 'q' is any surface consequence of 'p'. Therefore,

> although knowledge and belief are not invariant with respect to logical equivalence, they are invariant with

respect to those logical equivalences necessary for understanding what is being believed."

At the same time Hintikka does not exclude the possibility of a speaker's sincere statement that he does not believe that q although he believes that p, with $p \rightarrow q$ being a surface tautology at depth 'p'. But that, according to the approach, just indicates that *the given speaker does not wholly understand* 'p'.

In this conception explication of belief is thus reduced to a *definite idealisation* by treating understanding as a certain theoretical construct formulated, in this case, in terms of a distributive normal form without trivially incompatible components. The proposed approach consequently rejects the idea of a speaker as ideal logician operating at the level of deep tautologies, in favour of the idea of him as ideal logician operating at the level of surface tautologies.

In my view, the question of the adequacy of such an idealisation can be answered only if the following points are taken into account: (1) the role of the elements or 'logical particles', that constitute the corresponding inferential relations, in the construction and functioning of the speaker's conceptual system; (2) the role of these elements in the construction of special, formal languages as deductive systems treated independently, and partly employed to formalise arguments carried out in natural language, and in dependence on the wealth of their expressive means, capable or not to 'grasp' the correctness of these arguments. It is a property of these systems that not only can certain arguments actually carried out in natural language be formalised by means of them, but any argument or reasoning (possibly largely 'unnatural' and 'foreign' to the speaker's intuition) can be constructed within possibilities determined by the rules of such systems. Knowledge of the properties of these systems, and of the procedures and operations specified by them, relating both to the construction of definite objects within them and to their interpretation outside them, is *the construction of a definite concept in the speaker's conceptual system.* When the speaker has such a concept at his disposal he can explicitly define the correct-

ness or incorrectness of both 'natural' and 'artificial' arguments.

Reference to a definite concept containing information about the deducibility of 'q' from 'p' (however elementary or complex the inferential step from 'p' to 'q', described in one deductive theory or another), i.e reference to a definite conceptual system, represents the relevant restriction or limitation of the above-mentioned rules of inference; formally $B(Ind,\ p) \leftrightarrow B(Ind,\ q)$ with $p \leftrightarrow q$, iff $B(Ind,\ p \leftrightarrow q)$, i. e. iff $p \leftrightarrow q \in CS^*_{Ind}$; correspondingly $B(Ind,\ p) \rightarrow B(Ind,\ q)$ with $p \rightarrow q$, iff $B(Ind,\ p \rightarrow q)$ i, e. iff $p \rightarrow q \in CS^*_{Ind}$.

The construction of such a concept is immanent to the construction of the conceptual system itself (if we start from the point that a definite logic works from the very beginning of the formation of the conceptual system, which also requires a fundamental principle of interpretation as the principle of consistent construction of new concepts and their structures from those already contained in the system), i.e. it has an *implicit* character. At the same time the construction of such a concept may have an *explicit* character —as in the case of mastery of the principles of building a deductive system as the assimilation of special knowledge. In that case, it is possible to construct arguments such that establishment of their correctness will require corresponding explicit knowledge on the part of the speaker. This also applies to the set of arguments which, even though they are (in Hintikka's terminology) surface deductions, are often not at all intuitively obvious; knowledge of the consequences drawn in them relates to the corresponding competence of a definite speaker. In other words, the limitation of the speaker's absolute deductive competence, imposed by a definite formal theory, can only be considered adequate when knowledge of the procedures and operations for deducing logical consequences pertaining to the theory concerned is *part of the speaker's conceptual system.*

In view of said above the requirement of compatibility of a speaker's beliefs expressed above through the statements '$B(Ind, \sim p) \rightarrow \sim B(Ind,\ p)$' or '$\sim (B(Ind, \sim p) \& B(Ind,\ p))$' must not be made an absolute. Such statements are valid only when the concept of the incompatibility of 'p'

and '$\sim p$' belongs to the speaker's system of beliefs CS^*_{Ind} That will obviously be the case when the incompatibility concerned has a *trivial* character. Clearly, too, there will always be such a situation when the concept of incompatibility (even when it is non-trivial) is contained in CS^*_{Ind}, i.e. always when the corresponding concept of the relation of the formants of the incompatibility (brought out by a definite logical analysis made by means of the given logical theory) is contained in the speaker's system of beliefs. In the opposite case $B(Ind, p)\&B(Ind, q)$ is possible with $q \leftrightarrow \sim p$ iff $q \leftrightarrow \sim p \sim \in CS^*_{Ind}$. Along with other principles obvious from the standpoint of the interpretation given that characterise the logic of the *B*-operator a rule $(B(Ind, (p\&q)) \rightarrow B(Ind, p)\ \&\ (B(Ind, q)$ must be adopted, but because of the possibility of incompatible beliefs, $(B(Ind, p)\ \&\ B(Ind, q)) \rightarrow B(Ind, (p\&q))$ should be excluded from the set of such rules (it is, by the way, not valid, because of the possible absence of a semantic connection between '*p*' and '*q*').

In the light of the necessity demonstrated here of allowing for the conceptual system in an adequate logical analysis of belief sentences, a re-interpretation of the very requirement of compatibility of a speaker's beliefs appears to be justified. In fact, examination of an object in various possible worlds by means of a speaker's transworld identification of it cannot help but permit the ascribing of incompatible properties to it—properly speaking the real sense of alternative worlds is expressed in that. In this case, however, the drawing of an object's world lines should be ensured conceptually; examination of the object itself is only possible on that basis. In my view, Kripke's concept of a 'rigid reference' can be employed here, not on the absolute plane, that of the 'semantics of language', but on the plane of a definite speaker's conceptual system. The change in the concept of the object, without 'loss' of the object itself, can only be explained in that way if the rigidity of reference by a name is taken, not as what is treated in relation to the absolute universe of objects given by the 'semantics of language', but as what is treated in relation to a *definite universe of objects given by a speaker's conceptual*

system. Such an understanding also allows us to speak of definite possible worlds as compatible with the belief attitude of the speaker's and, besides, to employ the concept of incompatibility when analysing the belief attitude itself.

Finally, if the relations of logical consequence or logical equivalence between 'p' and 'q' as sentences—objects of belief are regarded from the angle of the possibility of the intersubstitution of the singular terms and even general terms contained in these sentences, then this possibility, like the cases considered above, must be determined by reference to a definite system of beliefs. Thus, if $p=(x_1, y)$ and $q=(x_2, y)$, where 'x_i', 'y' are constituents of 'p' and 'q', classed in the above-mentioned categories, then $B(Ind,\ p) \rightarrow B(Ind,\ q)$ iff $x_1 = x_2 \in CS^*_{Ind}$, i.e. iff $B(Ind, x_1 = x_2)$; if and only if the speaker supposes the identity of objects affirmed by the terms concerned to be true. In other words, in terms of the conception of possible worlds relativised in regard to the speaker of the language, one term is substitutable for another in a context of belief with retention of the same belief attitude if the concepts c_1 and c_2 correlatable with 'x_1' and 'x_2' correspondingly and treated as intensional functions, select one and the same object in the doxastic alternatives of *Ind*, i.e. in worlds compatible with what *Ind* believes. Conversely, substitution of 'x_1' for 'x_2' is impossible for *Ind* iff $x_1 \neq x_2 \in CS^*_{Ind}$. In terms of the semantics of 'possible worlds' this means that the object selected by the concept c_1 as an intensional function correlated with 'x_1' in worlds compatible with what *Ind* believes, is not identical to the object selected by the concept c_2 as an intentional function correlated with 'x_2'.

The orientation towards a definite conceptual system is revealed in the practice of linguistic communication itself; successful communication depends on choice of an adequate singular term in some context of belief, i.e. of a term capable of performing a function of identifying reference in the given conceptual system, which, in turn, presupposes a definite ontology. This corresponds in full to each conceptual system's having its own history of formation, while the community of these systems as a result of their socialisation

does not rule out definite (major or minor) discrepancies between them.

The *situation* of linguistic communication *itself, including speakers as bearers of definite conceptual systems,* can play the role of a factor facilitating the making of a reference (as I have already noted), even when the singular term is inadequate. The factors taken into account when one singular term is being put in the place of another in a belief sentence include not only knowledge of the deep level of the corresponding sentences but also, possibly, their surface characteristics. That can take place, for example, in cases of the use of cited linguistic expressions, and in general in those cases of the use of linguistic expressions in which the predicate related to the singular term in the belief context calls for allowance for both the meaning of the singular term and its linguistic form, or for only the linguistic form. Then, depending on this predicate, one can speak of both the proposition and the sentence as the object of belief. That approach quite accords with understanding of the essence of the fundamental principle of interpretation; perception of linguistic expressions is the fixing in a conceptual system of definite concepts by these expressions interpretable by other concepts and structures of them in this system, but at the same time it is also analysis of the linguistic expressions themselves (as definite physical entities) by definite concepts of that very system.

The difference between belief sentences in the *first* and *second* person and belief sentences in the *third* person seems indicative to me from this standpoint. Let '$B(a,p)$' be a belief sentence in which the first person, represented by the pronoun 'I', the second person, represented by the pronoun 'you', and the third person, represented by the pronoun 'he' figure alternatively as the argument a. The syntactic structure '$B(a, p)$' can be represented, for example, by the tree S in which 'S' = '$B(a, p)$' and 'p' = '(x, y)'.

Let us examine how the truth-values of 'S' and 'p' are correlated in each case of a definite *personalisation* of a, i.e when we examine accordingly: (S_1): $B(1, p)$, i.e. 'I

believe that p'; (S_2) :$B(2,. p)$, i.e. 'You believe that p'; and (S_3) : $B(3, p)$, i.e. 'He believes that p'.

The case of (S_1): the truth of 'S' means, according to the definition (D_1) *that* $p \in CS^*_1$, i.e. that 1 holds p to be true. The case (S_2) is treated in a similar way. Substitution of the singular term 'x', which is part of 'p', for the singular term 'x_i' obviously depends on whether $x = x_i \in CS^*_1$ is true; correspondingly $x = x_i \in CS^*_2$. The possibility of substituting a singular term 'The individual taken to the police station' for the singular term 'Bertrand Russell' in the sentence 'I believe that Bertrand Russell is a philosopher' or 'You believe that Bertrand Russell is a philosopher' will depend exclusively on whether I, or the person I am addressing, believes that Bertrand Russell and the person taken into the police station are one and the same person.

Case (S_3) differs essentially from (S_1) and (S_2). Apart from the situations described in (S_1) and (S_2), an examination of situations is assumed here in which the belief attitude B_3 is represented through the belief attitude of some other person, i.e. when there is in fact a *superposition* of the attitudes $(B(a, B(3, p))$ when $a \neq 3$. Then with 'S' true (false) 'p' can be taken as both true and false; the undifferentiation of the various belief attitudes can yield a paradoxical reading of 'S' ('He believes what he does not believe, and he does not believe what he believes'). The possibility of substituting one singular term for another in case (S_3) depends on whether $x = x_i \in CS^*_3$ with one of its interpretations; with another interpretation the substitution depends on whether $x = x_i$ CS^*_2 or $x = x_i$ CS^*_1 is true, with which $x = x_i \sim \in$ CS^*_3 is possible.

In terms of the example above the possibility of substituting a singular term in one interpretation of 'S_3' ('He believes that Bertrand Russell is a philosopher'), can be effected only when the corresponding identity occurs in the third person's system of beliefs; then, using Quine's term, one can speak of the 'opacity' of the interpretation of the singular term *as regards the third person*. With another interpretation of 'S_3' the possibility of the substitution depends on whether the identity concerned occurs in the system of beliefs of the person *to whom* the sentence *is addressed*.

Moreover, there may be no such identity in the third person's system of beliefs. Then one can speak of the 'transparency' of the interpretation of the singular term 'Bertrand Russell' *in regard to the third person*, but not absolutely. The referential 'transparency' or 'opacity' of belief sentences, and the connected problem of quantification in a belief context, must consequently not be made absolutes. Their treatment calls for relativisation of the analysis as regards conceptual systems presupposed as a decisive factor when a definite propositional attitude is asserted. Reference to conceptual systems (i.e. to the information contained in them) invariably (explicitly or implicitly) governs the choice of one singular term or another.

The use of some one singular term may in turn be treated as a sign of 'transparency' in regard to one conceptual system or another if it is supposed, as Castañeda does,[37] that one of the purpose of linguistic communication is to disclose definite propositions by means of natural language, and in that sense to communicate definite propositions as the *thought content* of the persons involved in the act of communication. From that standpoint linguistic constructions treated as propositionally 'transparent' in relation to the individual the given propositional attitude is ascribed to correspond to what Quine would call 'referentially opaque' constructions. Constructions propositionally transparent as regards the speaker must in turn be classed as what Quine calls 'referentially transparent' constructions. In any case natural language is treated as a means of *disclosing, singling out the structure of its speakers' thought.*

An essential property of linguistic communication, and, together with it, a fundamental reason for the complexity of its structure (not recognised, as a rule, by speakers, like, by the way, much else that they have to do with everyday, and which in fact is evidence of the perfection of the abilities they possess and employ during communication, usually without being conscious of it) is being unable to examine how other speakers refer to objects without *ourselves referring* to these objects; our referents, besides, may not, coincide.

The whole 'bouquet' of the possibilites of reference and

coreference thus represents a superposition of the belief attitude, as in the sentence 'Jonas believes that Petras believes that Antanas is lucky', just like other modes of generating new constructions, viz., the combination of indirect contexts with other constructions, the application of quantifiers to the constructions of indirect speech, the placing of the latter in modal constructions, and so on. If we hold, in conformity to what was said above, that a definite context of belief implicitly precedes the sentence cited, for example 'I believe that', then Quine's 'referential transparency' is nothing else than what Castañeda calls the 'propositional transparency' of constructions attributed to a speaker (uttering it). Such an optional use, for describing individual A's propositional attitude, of precisely those singular terms by which *A* would refer to a relevant object *B*, can of course be explained by the fact that what is important is not how *A* refers to *B* but what properties *A* ascribes to *B*. In the sentence 'John believes that Mary has arrived', for instance, the name 'Mary' may be taken as 'propositionally opaque', expressing the reference of the person uttering the sentence, or else named 'external', or as 'propositionally transparent'. In other words it may indicate not only how the speaker is referring to a definite individual but also how the person to whom the belief attitude under consideration is ascribed refers to this individual, i.e. it may express an *internal reference*. In the latter case there is what Castañeda calls 'cumulation of reference'.[39] When it is a matter of the superposition of a set of contexts expressing a definite attitude, the internal references about some contexts may obviously be external as regards others, and then the external reference proper is only a reference of the speaker. Even the paradox of negation of identity can be so explained, as in the sentence 'John does not believe that Mary is Mary', in which the first use of 'Mary' may signal *referential transparency* and the second *referential opacity in regard to the speaker*.

As to the transparency of linguistic expressions relative to conceptual systems, the use of indexicals is of particular interest; from the standpoint under study they fulfil two functions, viz., the speaker's realization of the indexical

reference, and its ascription to other speakers of the language. In an indirect context the indexical reference is made by the *person speaking* and not by the individual to whom the propositional attitude is ascribed (as in the sentence 'John believes I am a millionaire'; obviously John's belief refers to a third person, and not to the first person uttering this sentence and using the indexical 'I'). Such a reference leaves open a question about how the individual *to whom a propositional attitude is ascribed* refers to the object to which the person speaking is referring. In this function the indexical expresses a demonstrative reference made by the speaker, but in the terminology of Russel's difference of wide and narrow scope it has a wider field of action.

Likewise, in the sentence 'Mary thinks I am here now', for instance, the references expressed by the indexicals 'I', 'here', 'now' are ascribed not to Mary but to the speaker, although grammatically they are in indirect speech, from the angle of *logical form* they belong to direct speech. An indexal reference is always considered opaque in relation to the individual to whom a definite attitude is ascribed.

When we examine how other individuals refer to objects by means of indexicals, and when we wish to report about this to a third party, we are dealing with the use of *quasi-indexicals*, or with an ascription of the reference to other speakers. Thus, in the sentence 'At 5 o'clock John believed it was then 5 o'clock', the 'then' relates to the antecedent '5 o'clock' and is used to ascribe indexical reference to 5 o'clock to John by means of another indexical —'now', which John would have used or had in mind, expressing the appropriate attitude, namely 'It is now 5 o'clock'. Similarly, in the sentence 'John believes that he is happy', the 'he' refers to John through the name 'John' and not directly: the proposition that would correspond to John's state in this case would be expressed by the sentence 'I am happy'—from which it follows that a necessary condition of the ascription of a belief to an individual about himself is the individual's capacity to refer to himself in the *first person*.

But in view of the thesis I have adopted about a con-

text of belief being always implicitly present when something is stated about the world, one cannot agree that indexicals are both *propositionally* and *referentially* transparent in direct speech, in contrast to indirect; this can no longer be with respect to the speaker because the choice of one singular term or other in communication can be made relatively to a definite conceptual system, allowing for the term concerned to perform the reference function in view of the conceptual system of another speaker as partner in communication.

These considerations relate in principle not only to singular terms but also to any meaningful expression of natural language, or rather, from my point of view, to any concepts by whatever linguistic means they are fixed. Such concepts—because of their integral link with other concepts of the conceptual system in the sense of their genesis in the system—generally speaking contain both *idiosyncratic* components (specific for the given conceptual system) and components that reflect the speaker's *cognitive social* experience at various levels of cognition, viz., at the level of common sense, at the level of a definite scientific theory, at the level of the speaker's various hypothetical notions about objects of cognition.

The components of the level of common sense, or of scientific or quasiscientific knowledge, as definite stereotypes of a speaker's knowledge in 'stripped' form (i.e. abstracted from the concept's status and from the history of its generation in the conceptual system) are fixed in ordinary 'natural' and 'artificial' vocabularies (included in formal models of natural language) as *the meaning of the corresponding linguistic expressions* as that which constitutes the necessary condition of speakers' communication and, because of this, is already treated as a fact of the system of the '*semantics of language*'.

The transformation of cognitive facts into 'semantic' ones makes the distinction itself between the semantics and pragmatics of natural language relative. One can obviously speak of 'pure' pragmatics only in cases of the indirect or 'degenerate' use of language. (Metaphorical, ironical, and in general any allegorical use of language, certainly, belongs

to these cases). Let me note in that connection that a phenomenon is discussed in the literature that has been called conversational implicature', the explication of which primarily presupposes a delimination of what is *expressed* by a given use of a linguistic expression, and what is *implied* by it.[39] The former represents the 'conventional' meaning; the second is divided into two forms: what is implied conventionally and what is implied 'conversationally' (as in the case of irony, when the conversationally implied is counterposed to the conventionally implied).

What could be conditionally called '*intersubjective*' meaning components (*'objective' meanings*), allowing for what has been said above, is treated in theories of the 'semantics of language' as the scope (domain) of rules adopted in the theory for the construction of the meaning of linguistic expressions and as the object of the determination of their semantic properties and relations. Postulation of a universality of these components for all speakers is unavoidable in a project for constructing a theory of the 'semantics of language'.

Because only the semantic components that form the postulated 'semantics of language' are taken into account when considering speakers' linguistic competence, appeal to the same 'semantics of language' becomes inevitable when a belief attitude is being considered. Then (for example as in Katz's interpretational theory or in Montague's referential one) the semantic relations between expressions containing a belief context are treated in terms of the regularities of the postulated 'semantics of language' and not in terms of the structure of speakers' conceptual systems.

The components specific to conceptual systems ('subjective' meanings) are then written off to the pragmatics of natural language. That means treating *individual belief attitudes* in terms of the belief attitude of the *speaker of language* in general, i.e. as *common* (to speakers of language) belief attitudes. The latter might be represented explicitly by the context '*We believe that*' in the sense '*It is accepted to believe that*', 'It is supposed that' from the standpoint of common sense, the information accepted as true, known if not to all then to most or at least some com-

petent set of speakers, and relating to the sphere of scientific, hypothetical, philosophical, or any other notions of the world. A phrase expressing a definite belief attitude (in particular a general one) is omitted, as a rule, in the practice of language communication. The relevant sentence then appears as a depersonalised statement about the world, whatever aspect of knowledge of the world it belongs to. The text of a scientific theory as a scientific 'picture of the world' is built from such sentences.

Abstracting from individual systems of belief, but by analogy with personalised belief attitudes, one can speak in this case of a construct representing an intersubjective, and in *that* sense objective belief attitude, and correspondingly treat any 'objective system of beliefs' and an 'objective picture of the world' (formally CS^*_{Obj}). We would then, of course, be treating a case when $p \in CS^*_a$, when $p \in CS^*_{Obj}$ or $p \notin CS^*_{Obj}$; $p \notin CS^*_a$, when $p \in CS^*_{Obj}$ or $p \notin CS^*_{Obj}$; $x = x_1 \in CS^*_a$ when $x = x_1 \in CS^*_{Obj}$ or $x = x_1 \notin CS^*_{Obj}$, etc.; $p \rightarrow q \in CS^*_a$ when $p \rightarrow q \in CS^*_{Obj}$ or $p \rightarrow q \notin CS^*_{Obj}$, etc. We could thus explain why we say that a does not understand or does not fully understand 'p', if $B(a,p)$ but $\sim B(a,q)$ when, $p \rightarrow q$, i.e. when $p \rightarrow q \in CS^*_{Obj}$ i.e. when the implication $p \rightarrow q$ belongs to an 'objective system of beliefs'.

One must bear in mind here that the fragments of natural language that are employed as the object of analysis usually belong to everyday speech. The postulated meaning of the linguistic expressions is some average, as a rule, between speakers' notions at the level of common sense and their scientific notions which sometimes (implicitly or explicitly) are motivated by a need to draw a dichotony between knowledge of natural language on the one hand and knowledge of the world on the other, or linguistic and encyclopaedia knowledge, or is employed without any special motivation.

But if the conceptuality of belief cannot be all too clearly represented at the level of ordinary speech having to do with speakers' actual experience, or with the treatment of possible situations on the basis of such an experience, transgressing the limits of this speech and going over to

the level of theoretical language makes this conceptualisation obvious. The vocabulary corresponding to this level would obviously contain 'bits' or whole 'chunks' of a definite system of concepts understanding of which presupposes understanding of a definite set of other concepts in the sense of its genetic continuous link with other concepts of the conceptual system. However, it is not clear how this transition from the ordinary to the theoretical level would be effected in the theory of the 'semanties of language in the sense of the formalisation of speakers' relevant intuition.

The context of belief (in overt or concealed form) is thus always present when anything (true or false) is asserted about the world, i.e. a statement 'p' always presupposes a definite context of belief, and if this context does not always appear in what is called 'logical', or 'basic', or 'semantic' form of 'p', it always does it in what I called above the 'conceptual form' of 'p', which indicates that 'p' belongs to a definite system of belief CS^{*}_{a} as part of a definite conceptual system.

Let me clarify this by the example of negating a belief sentence. Let 'p' be the statement 'Bertrand Russell is a philosopher'. Representing 'p' with a definite context of belief, we have: $B(a, p)$ (i.e. 'a believes that Bertrand Russell is a philosopher'). The exposition allows us to say that denial of '$B(a, p)$', i.e. '$\sim B(a, p)$' has two interpretations, namely: $p \notin CS^{*}_{a}$ (i.e. 'It is not true that a believes that Bertrand Russell is a philosopher') and another that can be represented as a sort of imperative 'It is wrong to believe Bertrand Russell is a philosopher' or 'It is wrong to take 'p' in CS^{*} (formally, $(!p \notin CS^{*}_{a})$ in which '!' is a conventional operator of obligation.

The reference to a conceptual system in both interpretations is indisputable; but it comes out less clearly in the second interpretation; the point is that in the *practice* of linguistic communication a belief context, because of its self-evident character, is usually omitted. Since the truth conditions of the sentence are determined in this case by the part of it which expresses the content of the belief attitude, the predicate of truth relates as a rule to the sentence-object of belief. The second interpretation '$\sim B(a, p)$'

can be considered as basic for the semantics of the denial of '*p*', i.e. when $\sim$'*p*' is asserted. In terms of modern linguistic theories one can presuppose here transformational elimination of the context of belief contained at the 'deep' level.

When the belief context figures not only as the conceptual but also as the 'logical', or 'deep', 'semantic' form of '*p*', then, obviously, we have the first interpretation '$\sim B$ (*a*, *p*)'. In that case the truth conditions of the belief sentence are determined by the *whole* sentence.

From the standpoint of the conceptual system the transformation of individual, or subjective, belief attitudes into intersubjective attitudes can be treated as a sort of *objectivisation* of the former. The point concerns their conversion, as in general in the case of the conformity of the belief to reality depending on the possibility of ascribing a truth-value true to the sentence-object of belief, into *a subjective (individual) attitude of knowledge* KS_{Ind}, namely: $(CS^*_{Ind} \Rightarrow CS^*_{Obj} = CS^*_{Ind} \Rightarrow KS_{Ind}$ (i.e. '*a* knows that', '*a*, knows who (when, where, how ... ')). The latter, treated abstractly from conceptual systems is converted into an *objective attitude of knowledge* (KS_{Obj}), becomes part of the theoretical construct 'objective system of knowledge'. In some languages such an attitude is conveyed by neutral but etymologically indicative constructions (*'One knows', 'On sait', 'Man weiss'*) or is left out in general, i.e. it is present implicitly.

The relation of these attitudes as embodying a different degree of intensionality is naturally explained in terms of the semantics of possible worlds, namely: the more the possible worlds presupposed by a given attitude are different from the objectively determined actual world, the greater is the degree of intensionality of the concept embodying this attitude. Because of that, belief may be rightly considered more intensional than knowledge: everything a speaker knows(i.e. everything that is true in all possible worlds compatible with what he knows) must also be true in the actual world, while such a similarity is not required in the case of a belief attitude between the assumed possible worlds and the real world.

An individual knowledge attitude may be considered equivalent to the corresponding *neutralised objectivised* attitude from the standpoint of the truth of the sentence considered in it as an object of knowledge (I call this 'weak equivalence'). (Thus, if *a* knows that *p*, this is equivalent to 'It is known that *p*: in the sense that '*p*' is true). But it retains its intensional character, because, like the belief attitude, it relates to *a definite speaker's conceptual system.* The same restrictions hold here in relation to the principle of the substitutivity of identity as in relation to a belief attitude.

From my point of view just because the individual's knowledge may not fully correspond to the knowledge expressed by the context 'It is known that' (such a correspondence could be called 'strong equivalence'), the individual's knowledge is intensional in the same sense as his belief, but it nevertheless does not lose its character of knowledge.

Examination of the difference between 'transparent' and 'opaque' constructions (and of the related difference between referential and attributive usages, *de re* and *de dicto* modalities, wide and narrow scope of the corresponding linguistic expressions) represents theoretical quests for *something* that is not brought out in the theories considered but is inevitably present in communication, and manifests itself in one or other of the indicated above relations, and that I call speakers' *conceptual systems'*. The dichotomies concerned are evidence, from my point of view, of different interpretations of linguistic expressions in definite conceptual systems in the sense of the information contained in them. A constructive analysis of these dichotomies is therefore impossible, on the one hand, without understanding language communication as effected by speakers as bearers of definite conceptual systems (that allow to a definite extent both for the semantics and the nomenclature of other conceptual systems) and, on the other hand, without bringing out the status of what I have called the '*objective conceptual system*' as an abstraction from real individual conceptual systems.

Treating the 'objective system of belief' as independent from the individual systems of belief, ignoring the signifi-

cance of the latter in the interpretaton of belief sentences is one reason for counterposing the semantics and pragmatics of language. It leads consequently to the affirmation of the dichotomy of 'genuine' and 'pseudo' readings, the postulation of 'singular propositions' containing 'objectively given individuals', 'semantic referents' and 'utterer's referents', and in general to counterposing of *linguistic* knowledge to *extralinguistic* one. Yet not only the necessity of allowing in full for the significance of non-linguistic factors but also the effectiveness of doing so convince me of the necessity to treat the speakers *themselves* as a most important component of the context of the use of language. The point is that a person is not just a passive referent of linguistic expressions, but is an active interpreter of them, he is not simply a speaker but, first and foremost, the bearer of a definite conceptual system on the basis of which he understands the language, cognises the world, and communicates with other speakers.

Any ignoring, or inadequate allowance for this not simply linguistically but also *conceptually* competent subject makes the project of constructing a semantic theory of language itself a forlorn matter, and its main goal, that of clarifying a person's capacity to understand language, unattainable in principle. Examination of the semantic properties and relations of linguistic expressions outside their realisation in a definite conceptual system cannot serve as the basis for analysing problems that have an essentially epistemological character. A necessary prerequisite for tackling them in the context of analysis of the relation of *thought, language, and the world* is co-ordination of the analysis of the meaning of linguistic expressions with analysis of the structure of conceptual systems and with analysis of the information contained in them. The philosophical importance of the analysis of meaning consists just in this reference to a conceptual system as the system of a person's beliefs and knowledge of the world reflecting his cognitive experience. Acceptance of this point of view obliges us to treat the semantic study of natural language not as an end in itself, but as a *means* of analysing a speaker's *thought*.

By shifting the accent from examination of the absolutised essence of the 'semantics of language' to analysis of the conceptual system as it is formed when a person cognises the world, and as it is employed during intercourse with other speakers, we do not sacrifice either the objectivity or the unity of the theory. On the contrary, we have, as a result, a methodologically substantiated and theoretically promising programme of semantic research directed to bringing out the role both of *linguistic* and *non-linguistic* factors in conceptual assimilation of the world.

Notes to Chapter V

[1] Bertrand Russell. *The Analysis of Mind*, p. 231.
[2] Rudolf Carnap. *Meaning and Necessity.*
[3] See: Benson Mates. Synonymity.
[4] In order to avoid such conclusions and at the same time to retain the possibility of characterising such sentences as 'John is married or John is a bachelor' as analytical, Carnap introduced the concept of a *meaning postulate* in *Meaning and Necessity*: these postulates simply *assert* the analyticity of definite expressions of natural language.
[5] W. V. O. Quine. *Word and Object*, p. 203.
[6] *Ibid.*, p. 206.
[7] *Ibid.*, p. 166.
[8] See: W. V. O. Quine. *From a Logical Point of View.*
[9] W. V O. Quine. *Word and Object*, p. 165.
[10] *Ibid.*, p. 168.
[11] *Ibid.*, p. 212.
[12] Jerrold J. Katz. *Semantic Theory*, p. 146.
[13] *Ibid.*, p. 185.
[14] See: Richard Montague. English as a Formal Language.
[15] Jerrold J. Katz. A Proper Theory of Names.
[16] See: Gilbert Harman. Deep Structure as Logical Form.
[17] J. J. Hintikka. The Semantics of Modal Notions and the Indeterminacy of Ontology.
[18] David Kaplan. Quantifying in; *idem. That; idem.* On the Logic of Demonstratives.
[19] Richard Montague. English as a Formal Language.
[20] J. J. Hintikka. On the Proper Treatment of Quantifiers in Montague Semantics.
[21] Richard Montague and Donald Kalish. That.
[22] Richard Montague. Universal Grammar.
[23] See: Hintikka, J. J. *The Intentions of Intentionality and Other New Models for Modalities*, pp. 76-101.

[24] See J. J. Hintikka. The Semantics of Modal Notions and the Indeterminary of Ontology. *Art. cit.*, p. 400.
[25] J. J. Hintikka. *Models for Modalities*, p. 106.
[26] See: W. V. O. Quine. *Ontological Relativity and Other Essays*, pp. 63-67.
[27] J. J. Hintikka. *The Intentions of Intentionality and Other New Models for Modalities*, p. 124.
[28] See: V. V. Tselischev. *Filosofskie problemy semantiki vozmozhnykh mirov*; *idem.*, *Ponyatie ob'ekta v modal'noi logike.*
[29] J. J. Hintikka. *The Intentions of Intentionality*, p. 209.
[30] *Ibid.*, p. 210.
[31] E. Saarinen. Quantification: Problems of Personal and Impersonal Modality.
[32] D. Kaplan. On the Logic of Demonstratives.
[33] See: R. Pavilionis. *Yazyk i logika.*
[34] J. J. Hintikka. *The Intentions of Intentionality*, p. 183.
[35] See: J. J. Hintikka. *Logic, Language-Games and Information.*
[36] J. J. Hintikka. *The Intentions of Intentionality*, p. 190.
[37] Hector-Neri Castañeda. On the Philosophical Foundations of the Theory of Communication; *idem.* The semiotic profile of indexical (experiential) reference.
[38] See: Hector-Heri Castañeda. The Semiotic Profile of Indexical (Experiencial) Reference.
[39] H. F. Grice. Meaning.

CONCLUSION

The problem of the meaning of linguistic expressions has great significance in modern science on both the general methodological and the practical planes. As a problem of the explanation of speakers' understanding of language it is inseparable, from the question of the connection of thought, language, and the world, and the functions and place of language in cognition and communication. In the practical aspect examination of this problem is determined by the necessity of modelling thought processes, and of constructing and carrying out different projects for processing of natural language.

Evidence of the organic link of the theoretical, general methodological, and practical aspects of the problem of meaning is the fact that it is being studied by the joint efforts of philosophers, logicians, and linguists, a distinguishing feature reflecting the contemporary stage of the analysis of this problem being systematic use of rigorous methods and procedures. That circumstance is also reflected in the spread of understanding of modern logico-philosophical analysis of natural language as a 'formal philosophy of language', which differs from the traditional philosophy primarily in the method of investigating the problems discussed in it, based on broad application of the advances of contemporary logic and linguistics (which affects the quality and results of the investigations), rather than in the fundamental nature of the problems themselves.

The critical analysis I have made here of the main Western logico-semantic conceptions of meaning from the standpoint of their capacity to tackle the fundamental problems of contemporary logico-philosophical analysis of language leads to the following general conclusions.

Certain important results of theoretical and practical significance have been obtained during the logico-semantic analysis of language. They include first and foremost the singling out and theoretical substantiation of a specifically semantic problematic of the analysis of natural language compared with the similar problematic of formal, artificial, languages. The theoretical development of the concept of logical form for expressions of natural language is particularly important, and has substantially broadened the field of arguments carried out in natural language and embraced by logical means. The concept of the structure of language has acquired greater determinacy through the delimiting and systematic correlation of various levels of formal analysis of natural language—deep (basic, logical, semantic) and surface (syntactic)—and the development of alternative formalisms serving to describe them. Determination of the significance of the logical concepts of truth and reference, and their inclusion in the theoretical analysis of natural language as fundamental concepts has been especially fruitful, as has been the introduction of concepts developed in contemporary modal logic, especially those of the semantics of 'possible worlds'. Use of these concepts has significantly broadened the framework of analysis and made it possible to investigate the relation of language and the world, and to discuss ontological problems of natural language.

At the same time, critical analysis of the conceptions studied shows that their explanatory possibilities are essentially limited by the accepted general methodological principles governing the understanding of the relation of thought, language, and reality, which sometimes still bear a stamp of the neopositivist doctrine of language and would not allow for changes in the very orientation of analysis, in the understanding of its very object.

The opposing of linguistic knowledge to extralinguistic is one such theoretically untenable and methodologically misleading tendency. The absolutising of the linguistic factor conveyed in the postulate of the 'semantics of language' peculiar to the logico-semantic conceptions analysed in the book, makes the very project of constructing a semantic

theory of natural language unrealisable. The aim of such a theory, which consists in formalising the concept 'meaningful expression of natural language' and in clarifying speakers' ability to understand expressions of their language, is unachievable in principle. The striving during the evolution of logico-semantic studies of natural language to increase the adequacy of its formal model by an ever wider systematisation of its semantic aspects has led to the paradoxical consequence as to impossibility of building an adequate semantic theory.

The study I have made confirms the need to correlate analysis of the meaning of linguistic expressions with analysis of conceptual systems as definite systems of belief and knowledge reflecting speakers' cognitive experience at various stages and levels, and in various aspects of cognizing the world. Such systems are deemed as basic for understanding any objects, linguistic expressions included. Language plays an essential, but not an exclusive role in the construction of such systems; the very possibilty of acquiring language presupposes, as a necessary condition, a preverbal stage in the forming of conceptual systems that reflects the prelingual experience of the bearers of such systems. Ignoring of this circumstance leads not only to an empirically and theoretically unmotivated, but also methodologically unsound ascribing of functions of generating thought to language itself, to the purely verbal form, to an identifying of thought and language and not to disclosing of the mechanism of their connection.

Mastery of verbal symbolics is a necessary condition for the building of information that essentially broadens the boundaries of cognition and understanding of the world of the bearers of conceptual systems, serves as the basis for their communication and for the social orientation of individual conceptual systems toward a socially significant 'picture of the world'. Theoretical motivation of this position is extremely important because of certain mystical speculations about language as 'a picture of reality', and of language as the determinant of world outlook. However the mastering of language does not rule out qualitative differences between individual conceptual systems as containing

'subjective pictures of the world' (in the form of subjective systems of beliefs and knowledge), constructed by means of language and conditioned by differences in the understanding of linguistic expressions. The interaction of these systems, which reflect objective reality to one extent or another, determines the mechanism of linguistic communication and the complexity of its structure.

Even though natural language is characterised by a definite syntactic system that is revealed by various formal means, it is not a conceptual system but a means of building and of symbolically representing it. The analysis of language with a view of creating a semantic theory of it is therefore constructive to the extent that it leads to disclosure of the principles of the forming and functioning of conceptual systems. Absolutising of 'the semantics of language' leads in the end to divorcing language from the process of cognition itself, i.e. from the basic condition of the forming and functioning of conceptual systems.

If the logico-philosophical analysis of language aspires to explain the connection of thought, language, and the world, it has to be analysis of the role and place of language in the process of cognition. The answers to the questions put forward in this analysis should consequently be sought in the general context of the information processes taking place in man's consciousness when he is building a definite conceptual picture of the reality, and that is the essential function of language.

From Meaning to Value, or New Perspective of Analysis

The period since the Russian edition of *Meaning and Conceptual Systems* was published has permitted me to reconsider both the 'problem of meaning' itself and the effectiveness of the approach I proposed for analysing it. The variety of new semantic conceptions that have appeared in this period, and of the 'old', further developed ones, does not prevent one from seeing what is bringing investigators of meaning closer together and what is separating them. For all the diversity of the initial intuitions and notions about the nature of language and meaning, there is an obvious striving to allow systematically, to the greatest possible extent, for the *pragmatics* of language by an ever broader spectrum of 'contextual factors' like 'unexpressed assumptions and practices', 'encyclopaedia knowledge', 'beliefs', 'desires', 'intentions', etc., being introduced into the schema of the explanation of meaning.

The analysis of the meaning of linguistic expressions in the context of analysis of *understanding* them is becoming more and more characteristic of present-day philosophy of language. Correlation of meaning and understanding has reached a level, in turn, at which a comparative evaluation of the contribution of analytic philosophers, hermeneutists, semioticians, and linguists, to the philosophy of language is possible.

What is meaning, and what does it consist in—in the world, in ourselves, in the texts we deal with, or in some sort of relation embracing us, the world, and texts? What is understanding—is it knowing or believing? On what then is our behaviour, knowledge, and intercourse based? What relation does language have to all this? Is language

indeed the most important precondition of our rationality and so of our capacity to understand and cognise the world and ourselves, and to communicate with others? Can something common and constructive be found among the positions of the analysts who suggest that the theory of the meaning of linguistic expressions should be a theory of understanding them, of the hermeneutists, who treat the theory of understanding as one of interpretation, and of the semioticians who consider that the objects of interpretation are texts as aggregates of linguistic or non-linguistic signs, and build models of meaning as models of the meaning of texts? And if an explanation of the understanding of language is impossible without explanation of our capacity to understand the world, do linguists then turn out to have nothing to do with the investigation of language?

Let me prolong this series of questions.

Is the conflict between the two dominant approaches to the analysis of meaning in contemporary Western philosophy of language not illusory? That is to say, the conflict between the phenomenological (in which I include both the classical studies of Husserl, Heidegger, Merleau-Ponty and the contemporary hermeneutical doctrines of Gadamer, Habermas, Ricoeur, and others) and the analytical (with which, in this case, I associate the studies of Davidson, Kripke, Putnam, Searle, and Hintikka). Is there not something in common between them and the leading French semiotic school of Algirdas Greimas? And, finally, isn't there a need both for constructive use of the results obtained in these trends of the investigation of language and meaning, and for changes in the *very* methodology of the approach to analysis of language and meaning?

Below I shall try in extremely condensed form, and basing myself on the conception of language and meaning proposed in this book, to sum up my possible answers to the questions posed and with that to note some new lines of development of this conception.

(1) With the phenomenological approach an ontological conception of the *linguality (Sprachlichkeit)* and the *semanticity, or semantics, of the world* is adopted. The concept of meaning is interpreted in terms of concepts of *intention-*

ality, value, interest, etc., intended to express a person's 'involvement' in the world and the *significance of the world-for-man*. With the analytical approach a conception of the '*semantics of language*' is assumed as a certain aggregate of meanings contained *in language* and disclosed through examination of the relation of language and the world. In that case the concept of meaning is interpreted in terms of the concepts of *intensionality, truth, information*, etc., expressive of the referential ties of language and the world. In semiotic analysis (as represented in the works of Greimas)[1] a postulate is also adopted of the 'semantics of language', or rather of the '*semantics of a text*', that is based on the 'semantics of language' without the treatment of referential relations between language and the world, or the text and the world. The problem of meaning is explicitly linked in this analysis with that of *value* (valeur). Their relation is explained in terms of the intentionality of human behaviour as a search for value objects, material or immaterial, as a perennial history of mutual exchange, acquisition and/or loss of values.

In all these cases a definite *objectivist* conception of meaning is adopted (of meaning-in-the-world, or 'semantics of the world', and *meaning-in-language*, or 'semantics of language', and *meaning-in-text*, or 'semantics of text') in various versions and modifications. The possibility of explaining understanding as it is accomplished by *a real human subject* possessing a definite competence, and not by some construct of theory, is lost through this 'objectivising' of meaning. The mutual incommunicability of the approaches named rules out the very possibility of a systematic and constructive comparison of the concepts of intentionality and intensionality, of value and information, of interest and truth, of belief and knowledge, etc., that from my point of view *interdependently* characterise human perception and understanding of the world, and man's behaviour in it. It is consequently also impossible to disclose the phenomenon of the understanding of language without such a correlation of these concepts. From my point of view such understanding calls for an inclusion of the human factor in our schema of explanation of meaning, by which mean-

ing is no longer treated as some entity alienated from man, but constitutes the essence of his *orientational—cognitive* and *evaluating*—attitude to the world.

(2) It is possible, on the basis of the proposed conception of meaning, as a first step in that direction, to tie up the phenomenological concept of the *intentionality* of acts and states of consciousness (i.e. as the *directedness* of consciousness to existing or non-existent objects), with that of meaning as the content of these acts and states, i.e., with the analytical concept of *intensionality*, related to the meaning of linguistic expressions, to the *information*, or *content*, expressed in them.

The interest displayed by some analysts in the phenomenological conceptions of perception of the world seems symptomatic to me in this regard.[2] Although loyalty to the doctrine of the 'semantics of language' is maintained in principle, and correspondingly to the objectivist interpretation of meaning and understanding, one cannot help seeing a striving to overcome the attraction of this semantics and to come out into the open space of phenomenological realities. For Searle, for example, who delimits intentionality and intensionality, man's capacity to correlate himself with the world by means of various intentional states (knowledge, beliefs, desires, etc.) is biologically more fundamental than his capacity to use language.[3] Intentionality is therefore not supposed to be derived from language but language, on the contrary, is considered logically derived from intentionality. Since, from that point of view, any adequate, complete theory of language calls for explanation of how our brain relates us with the world, the philosophy of language is treated as a branch of the philosophy of mind (*consciousness*). For Hintikka identification of intentionality and intensionality means first and foremost their identification with the concept of informativeness as compatibility of what a speaker knows, believes, desires, etc., with a definite state of affairs in the actual or some other possible world.[4] But in the one case as in the other of such an allowance for 'phenomenological realities' it is not sufficient to bring out the relationship of *meaning* and value, of *meaningfulness* and *significance* as

the most important characteristics of human *understanding* and behaviour. What, then, is the importance and perspective of relating these characteristics?

(3) According to the hypothesis of meaning as part of a conceptual system presented above, understanding of language and of the world primarily presupposes *perception* of them. Perception of an object, in turn, implies not only its perceptual but also its *conceptual* singling out from other objects by attributing a definite *meaning,* or *concept,* to this object as a mental, semantic representation of the object, as its conceptual 'picture'. I shall treat these semantic representations as *intentional states* of consciousness (mind). On this view the perceived (conceived) objects are *signs,* and the meaning attributed to them is the true or false information the subject of perception has at his disposal about them. Configurations of these signs form *texts* (of the world).

It is fundamental for this constructing of the meanings of the signs-objects that new meanings are built up (generated) from meanings the subject of cognition already posesses. These meanings thus serve simultaneously as semantic analysers of the perceived (conceived) object and as components of the meaning or structures of meanings constructed in that way, i.e. as parts of a resulting *system of meanings,* or *conceptual system.* Such a system represents the subject's semantic medium of perception (conception) of the world and of himself, of transcendent and immanent reality, including the semantic representation of non-existent states of affairs in the real world. By concentrating on the logical and not the substantial properties of these representations, we have grounds for saying that the structure of the conceptual system itself brings it about that we only perceive those objects that we can 'grasp' by means of the meanings contained in our conceptual system, and that presupposes a special mode of *interpretation* of these signs-objects, a mode of *our comprehending* them *for us,* a mode of *our understanding* them.

To be comprehended is consequently to be interpreted by means of a definite structure of concepts in a definite conceptual system that embraces any information and any

possible mode or method of cognising the world. To make an object comprehended is to build a definite structure of concepts that is *connected* (because of the nature of the conceptual system) by a relation of interpretation with other structures of the system. Since meanings are treated here as information about the actual or possible state of things in the world, comprehensibility is the *constructibility* of a definite 'picture of the world' in a definite conceptual system, it consists in the feasibility of constructing a definite 'picture of the world' interpreted in the conceptual system through the meanings (concepts) contained in it.

(4) It is this property of the *connected nature* (connectedness) of the concepts of a conceptual system, of the formation of a *whole,* of the *in-forming* (as the attribution of form to the integral whole), of the filling in of the 'gaps' or the 'building of bridges' between concepts, and thus of constructive overcoming of the *distances, differences and contrasts,* and any other kind of *incompatibility* (itself the source of meaning), that constitutes the essential nature of meaning and understanding. It is obvious that the signs-objects thus interpreted, or understood, and serving as points of reference of the relevant concepts may have any nature, 'natural' or 'artificial', 'concrete' or 'abstract': the sounds that form language, noise or music; arguments and theorems that form proof; the colours that form a picture; the shapes and volumes that form physical bodies; birth and death, which form life or, rather, a fundamental incompatibility of human life as an object to be understood, to be accepted as a *whole* to be filled with some activity, in short, any real or imaginary signs-objects as objects of understanding.

It is worth noting that this simple idea of 'connectedness', 'binding', 'tying things together', 'bringing things close', 'reaching', etc., etymologically underlies the set of linguistic expressions that cover the 'semantic field' of meaning and understanding (for example, Latin *comprehendere;* English *to catch, to seize, to follow*; French *saisir, comprendre*; German *fassen, ergreifen, begreifen*; Lithuanian *pagauti, suprasti,* etc.). That there is always a distance between the subject and object of understanding is similarly

reflected in the etymology of such expressions as the German *verstehen* or English *understand*, while the two very indicative Lithuanian expressions *prasme* (meaning) and *suprasti* (to understand) tell us that understanding is the overcoming of this distance, the bringing of the object of understanding closer to the subject, making the object familiar to the subject, it is the object's assimilation by the subject.[5] It is not difficult to recognise in this 'semantic field' the idea of *purposefulness, directedness,* or *intentionality*—in itself the hallmark of meaning. It is therefore by no means a simple historical accident that the French *le sens*, for example, acquired the meaning of 'meaning' (as information) and the meaning of 'direction'. The idea of the *connectedness* is concealed in both interpretations; it is as essential to them as to understanding itself. (That is beautifully reflected in the semantics of the saying *Comprendre c'est pardonner* (To understand is to forgive), which is nothing else than an invitation to look for justifying motives in some one direction: back, in the past (for causes), or ahead, in the future (for aims), and so to connect what is understood with the past or the future.

(5) Linguistic signs are perceived (comprehended) as any signs of the world. But the fact that they are employed to designate other signs-objects already singled out by us perceptually, or rather that they are linked with the meanings we have attributed to these signs-objects, makes them *signs of signs*—both interpreted in *one and the same* conceptual system. Thus, because of (a) the interconnectedness of the meanings (concepts) of a conceptual system and (b) its capacity to 'retain' previous perceptions (conceptualisations) in the memory by the conceptual structures constructed in it, one can say that *the whole* conceptual system is involved in the interpretation of a sign, and that itself is the *sole possibility* for the sign to *express* meaning. It is in this that indexicality as an essential feature of a sign is concealed; its 'meaning' is an integral part of *the whole* conceptual system: no verbal formulation can in principle exhaust the content associated with it. The whole richness and complexity of our sign games lies in this dialectic of the openness and givenness of a sign (text) and the laten-

cy and immanence of their interpretation. Language does not express any meanings in itself that exist independently of conceptual systems; it does not express anything if its interpretation is not presupposed in a definite conceptual system. One and the same language can serve for the further construction and symbolic representation of the content of different conceptual systems that embrace a speaker's other possible notions about the actual or for some possible world. Natural language consequently is not a universal means of interpreting other languages. Any language, including natural language, is interpreted in *conceptual systems,* although—and this must not be underestimated—such interpretation is largely realised through meanings constructed by *means of natural language.* This explains the significance of natural language in ordinary, scientific, esthetic, and any other communication.

The locution 'language serves to express a definite meaning' must therefore be understood in the sense that it is by means of language that a definite meaning (concept) can be fixed (thanks to its coding function) or built (thanks to the function of manipulation of concepts) into some other (trivially, in the same) conceptual system. These two functions also make it possible to 'transmit' information from one speaker to another by means of texts, whatever they relate to: i.e. when meanings (concepts) belonging to a definite conceptual system are coded by some text at one end of such an information 'transmission line', and the *same* text is decoded in some other conceptual system at the other end. It is in this sense that texts 'preserve' information on the time axis and in historical perspective.

(6) The circumstance that the content of a semantic representation as an intentional state is determined by its *connection* with other representations and with the *whole* system of them as the basis of interpretation of any texts (non-linguistic or linguistic) determined the essentially *intensional* nature of any perceptions and conceptualisations of the world, and any judgments about it. To speak of meaning in particular as something associated with definite signs (texts) can therefore be no more than metaphorical, i.e. no more than a definite *façon de parler,* because the

meaning' is what is constituted by the *whole* conceptual system, in this case, the *whole* of its intentional states. Some of them, being more indirectly related than others to a definite sign (text) in a definite act of interpretation, simply play a more active role in its interpretation. The conceptual system itself is a *constantly* present intensional context of interpretation, i.e. it is present in any act of interpretation of any (non-linguistic or linguistic) text.

From this standpoint a conceptual system is not a dictionary or an encyclopaedia, or a totality of rules of the use of linguistic signs. It is a system of interconnected semantic representations reflecting the subject's cognitive experience at very different levels (including pre-verbal and non-verbal) and in very different aspects of his consciousness of the world and himself. The most abstract meanings (concepts) in it are systematically linked with meanings (concepts) relating to the subject's everyday experience as part of a *single* conceptual system. It is in that status that a conceptual system constitutes the final instance of the interpretation of any signs (texts), non-linguistic and linguistic. The status and nature of semantic entities as ingredients of a conceptual system thus differ in principle from the absolute entities of the meanings postulated by theories of the 'semantics of language'. The latter represent as a rule a list of atomic artefacts qua semantic universals of natural language that simulate certain stereotypes of objectivist concepts, something in between speakers' ordinary or quasiscientific 'ideas' of the world. The boundaries of such a 'semantics' (i.e. what should be included in it, and what excluded and left over, for example, to the 'semantics of the language of science' or any other mode of describing the world) remain unclear, not to mention the absence of an explanation of the transition from ordinary language to scientific etc., i.e. the relationship between different conceptual regions.

(7) The fact that a conceptual system is constructed by *interconnected* semantic representations that reflect the definite cognitive experience of the subject of the system not only makes the process of interpretation-understanding itself ambiguous, but explains the possibility of a broad spec-

trum of differences of understanding between the subjects of different conceptual systems.

However, it does not follow at all from the fact that the subject of a definite conceptual system can—within the limits of his conceptual competence—interpret (understand) some text or other of the world and consequently build a corresponding 'picture of the world', that he *holds* these pictures to be *true*, or that he takes them as part of his own vision of the world. In other words, such a subject is never simply an uninterested interpreter of non-linguistic and linguistic texts who supplies them with true or false structures of meaning, like a mirror pointed at the world, i.e. intentionally orientated, but indifferent to everything reflected in it. The need to orientate in the world—initially physical but later intellectual—and to find his place and way in it, compels man to 'choose' from the set of texts he encounters and which he is able to interpret, i.e. to render meaningful, in his conceptual system, those that he *holds to be true*, that he *accepts*, and that are therefore not only meaningful but also *significant for him*, and that represent a *value*, an *interest* for him.

The point concerns the singling out in a conceptual system of those semantic structures that represent the subject's beliefs about the world. The set of these structures, linked with one another and with the whole conceptual system, forms a system of beliefs as a subsystem of the conceptual system embodying a subjective (individual) picture of the world, often but by no means necessarily signalled by such contexts as 'I believe that', 'N believes that', etc. It is precisely within the theory of conceptual systems that semantic structures can be treated as semantic representations of the world and consequently analysed as intentional states oriented (directed) to signs-objects of the actual or some other possible world. It is thus that comprehended objects become *significant* objects for the subject interpreting them, acquiring or losing value for him in regard to his conceptual system. This way a conceptual system, or a semantic system, transforms itself into an *axiological* system, conjoining *meaning* and *value*. It is thus that these objects

become *desirable* objects, objects of search and quest, provoking *actions* of the subject of belief.

Incompatibility plays an essential role here—in defining the *significance* of objects of interpretation—and also in comprehending them, i.e. in determining their meaningfulness with regard to the system. This time it is incompatibility ('distance', 'gap', 'difference', 'contrast', etc.) between the subjective (individual) 'picture of the world' on the one hand, and the real world on the other, or between the 'picture' that the subject of interpretation has and the 'picture' he projects in relation to some possible world, and so on. It is a matter of the absence of definite signs-objects in some of these 'pictures' and their presence in some others that are projected, i.e. are formed in the conceptual system.

Incompatibility of that kind alters the ontological status of the semantic system that a conceptual system represents, converting it into an *axiological* system pursuing definite *aims*, possessing definite *intentions*, and striving to realise them by means of certain *actions*, to achieve the desired objects and convert them from the status of possible objects to that of real ones. Such an incompatibility, represented in terms of the subject's dissatisfaction (physical and/or intellectual) lies at the roots of human behaviour and is inseparable from this process of converting meaning into significance, making up the semantico-axiological basis of human action. It is within the framework of the conceptual system, subsuming a belief-system, that not only is the subject's *cognitive* relation to the world thus realised but also his *axiological*, *volitative*, and *operative* attitude to the world.

Examination of a conceptual system from the angle of its formaton and functioning indicates the quite natural link of meaning and belief, of the will and action of the subject of interpretation. As a result, semantics, instead of being (as usually supposed) an absolute in which *meaning* and *sign* (linguistic and non-linguistic) are correlated, is naturally converted into a domain in which *meaning* becomes *significance* and the interpreting subject the evaluating, willing and acting subject. The static character of ab-

stract and autonomous semantic structures postulated in theories of the 'semantics of language' and based on stock of so-called primitive semantic universals, gives way to the dynamism of conceptual systems formed from interconnected intentional states treated as vehicles of definite value attitudes and the semantico-axiological basis of the behaviour of the subject of interpretation.

(8) If such a subject orientates himself more or less efficiently in the world, some of his beliefs about the world will obviously *be true*. These are the structures that constitute *individual,* or subjective, *knowledge of the world* as the part of the system of beliefs that embraces, and is no less limited by, what the subject knows of the world. This knowledge (signalled, similarly to belief, but not necessarily, by the context 'I know that', 'N knows that', etc.) embraces both information relating to the subject's everyday cognitive experience, and to his personal history in the world, including the pre-verbal period of the constructing of the conceptual system, and also the more complicated, systematised, theoretically loaded information that is coded by scientific texts. A considerable part of this information can be called 'intersubjective' and in *that* sense objective. It represents conventionally accepted knowledge of the world or what some subjects at least, taken to be competent and authoritative, think about the world: such information may be revised in the course of cognition. In any case it is *part and parcel* of definite conceptual systems in which it is connected by a network of interpretation relations with other, possibly less conventional, more idiosyncratic, and less theoretically loaded, more 'down-to-earth' and 'cruder' but pragmatically satisfactory meanings (concepts) of the conceptual system.

Conceptual systems thus contain both individually accepted constituents, specific to the system, and other 'conventional' ones, socially acceptable, that reflect the individual's social cognitive experience. (Theoretical analogues of these 'intersubjective' constituents, or so-called 'objective' meanings, form the subject-matter and substantial basis of theories of the 'semantics of language').

When subjective knowledge as part of individual sys-

tems of beliefs, is treated abstracted from them, it is transformed into 'objective' knowledge as part of what could be arbitrarily called an 'objective system of knowledge', which is in fact a theoretical construct. This construct, being an abstraction from individual systems of knowledge, exists exclusively symbolically in a set of scientific texts as in historically and socially determined 'scientific pictures of the world'. The 'content' of an 'objective system of knowledge' is a symbolic accumulation of appropriate information from individual systems of knowledge. Such knowledge, it should be noted, is often represented, by contexts like 'It is known that', which are, as a rule, omitted because of their depersonalised character, i.e. they are present but implicitly. The corresponding sentences then appear as impersonal statements about the world. It is of such sentences that texts of science, irrespective of their subject-matter, are composed. But even such knowledge is neither absolute nor final, but is historically, individually and socially determined, even with those who proclaim it in the name of Science, History, Progress, or Nature herself.

In logic, according to the old tradition, these contexts of objective knowledge are taken as *extensional* in opposition to *intensional* ones that signal that the subcontextual part belongs to definite subjects (in my understanding, to definite conceptual systems). The considerations set out above indicate that when allowance is made for the factor of conceptual systems that embrace knowledge as part of a structure of belief, the opposing of extensional contexts to intensional ones is clearly relative: any extensional context is always part of a definite intensional one because knowledge put into the intensional context is always related to a definite conceptual system. Such a structure of a conceptual system explains the *interdependence* of the intentional states forming the system. It is this dependence of intentional states on a particular conceptual system and the consequent interdependence of intentional states which accounts for the essentially *intensional* character of any act of interpretation. That is why so-called extensional contexts of interpretation are a partial case of intensional contexts corresponding to how semantic structures that repre-

sent knowledge are a partial case of structures that represent belief within a single conceptual system.

(9) It follows from the relation of the structures of belief and knowledge as parts of a conceptual system that it is precisely the subjects *value* oriented attitude to the world and his relation and interaction with other subjects that depends of the *structures of belief*. In order to represent the contrast in its most general features between what is known and what is believed on the one hand and between what is known objectively on the other, it is sufficient to say that it is precisely (objectively) *false* beliefs that often constitute the basis of the subject's orientation relation to the world and the criteria of the significance of the world for him. That is why the truth is by no means always what a person is striving for; even on the moral plane communication of the (objective) truth to a subject may do him harm, while to let him live according to his subjective 'picture of the world', according to his beliefs about the world, even when they are (objectively) false, on the contrary, may do him good. In other words, knowledge in the context of a conceptual system is a relative value both as part of this system and as the measure of the world's significance for the subject of the system. From that standpoint cognition is a construction not only of new knowledge but also of new false information (although possibly satisfying the subject and useful to him)—both being indissolubly linked as parts of a *single* system of meanings.

(10) It follows from what I have said that understanding of a linguistic or non-linguistic text is always interpretation of it on a definite level of a conceptual system. (A) It may happen on that neutral plane in which the interpreter simply comprehends (renders meaningful) the text without expressing his attitude (acceptance or non-acceptance) to it. The quality of the interpretation moreover depends exclusively on the meanings involved in the interpretation. (B) Understanding may be reached at a level of meanings that form a system of belief as part of a conceptual system. (C) Finally, understanding may occur at the level of meanings that form a subjective system of knowledge as part of a system of belief. To understand,

consequently, means to interpret, but not necessarily to hold to be true (to believe), and furthermore, to know. But to know always means to hold to be true (to believe) and, consequently, to be part of a definite conceptual system. One can therefore say that someone does or does not understand something only when one allows for a definite conceptual system and for what constitute the cognitively basic subsystems of belief and knowledge in it. One can also speak of the univocity of understanding in relation to conceptual systems and what is common to them (because of the uniformity of our nature and the possible similarity of cognitive experience). But to ascertain such univocity one may not quit one's conceptual system and pass to another and, so to say, look at the world through its eyes. We may understand the others only when we interpret them in our own conceptual system.

A linguistic or non-linguistic text does not in itself determine what should be understood; it is open to *any* interpretation. Putting it metaphorically, 'it waits for those who can read it', 'it is a scheme calling for filling', or 'it is a *pretext* of a possible interpretation', and so on. In saying that, I do not belittle the significance of texts, but rather get a chance to reformulate the answer I gave above about the expressibility of linguistic texts in terms of any *text* as an object of interpretation.

My possible answer to the earlier posed question of where the meaning lies—in the text, the author, or the interpreter?—can be formulated in the context of these considerations as follows. The short answer I suggested above—that a text expresses nothing until it is interpreted—can now be supplemented. In answering this question in *such* a way I would be taking only one agent of communication into consideration, namely the interpreter, while the role of the author of the text would remain unclear. A more adequate answer would be this: to express is on the one hand to designate (codify) the meanings (concepts) of one conceptual system and on the other hand to read this designations (signs), to decode them in another (trivially in the same) conceptual system.

In allowing for the variety of participants in the proc-

esses of communicating conceptual systems and the ambiguity of their structure, we get a no less impressive variety of similarities and dissimilarities of understanding, including (among other cases) those in which the author of a text and his interpreter are separated by a definite interval of time, history, culture, individual experience, and even nature, which determine not only the sphere and scope of the *meaningful* but also the sphere and scope of the *significant*.

It is the singling out of the *significant*, and not simply of the meaningful, that determines the behaviour of the *subject* of the conceptual system, and his attitude to the world, his interaction with other bearers of conceptual systems. It is therefore only when we are conscious that man is a conceptually competent being capable not only of accumulating definite information about the world but also of expressing his attitude to it by choice, evaluation, and preferences, not only to 'reflect' the world but also to accept, or not accept it, only then can we be sure that we are doing something constructive in the analysis of language, meaning, and understanding.

Vilnius
June 1989

Notes to 'Second Thoughts'

[1] See: A. J. Greiman. *Du sens* (Seuil, Paris 1970); *Du sens II* (Seuil, Paris, 1983).

[2] See, for example, H. L. Dreyfus (Editor). *Husserl, Intentionality and Cognitive Science*. Compare, as well, Saarinen's paper 'Davidson. and Sartre', particularly relevant to the considerations set out here.

[3] J. Searle. *Intentionality*.

[4] See: J. J. Hintikka *Intentions of Intentionality;* idem. Phenomenology vs Possible-Worlds Semantics.

[5] Cf. hermeneutic concepts in this context; for example, Ricoeur's 'decontextualisation' and 'recontextualisation' (P. Ricoeur. La fonction hermeneutique de la distanciation); Gadamer's 'Aneignung', 'Applikation', 'Verfremdung' (H. G. Gadamer. *Wahrheit und Methode*); also the comparative analysis of Sartre's *'pour-soi'* and *'pour autrui'*, 'regard' and Davidson's 'radical interpretation' discussed by Saarinen (see note 2).

[6] See: R. Pavilionis. On Meaning and Understanding.

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